

DECEMBER 1949

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CHEMICAL PROCESSING PREVIEW

The Magazine of Processing, its Control and Development

Highlights

of this issue's
225 articles

*Describing developments in
processes, techniques, materials,
equipment*

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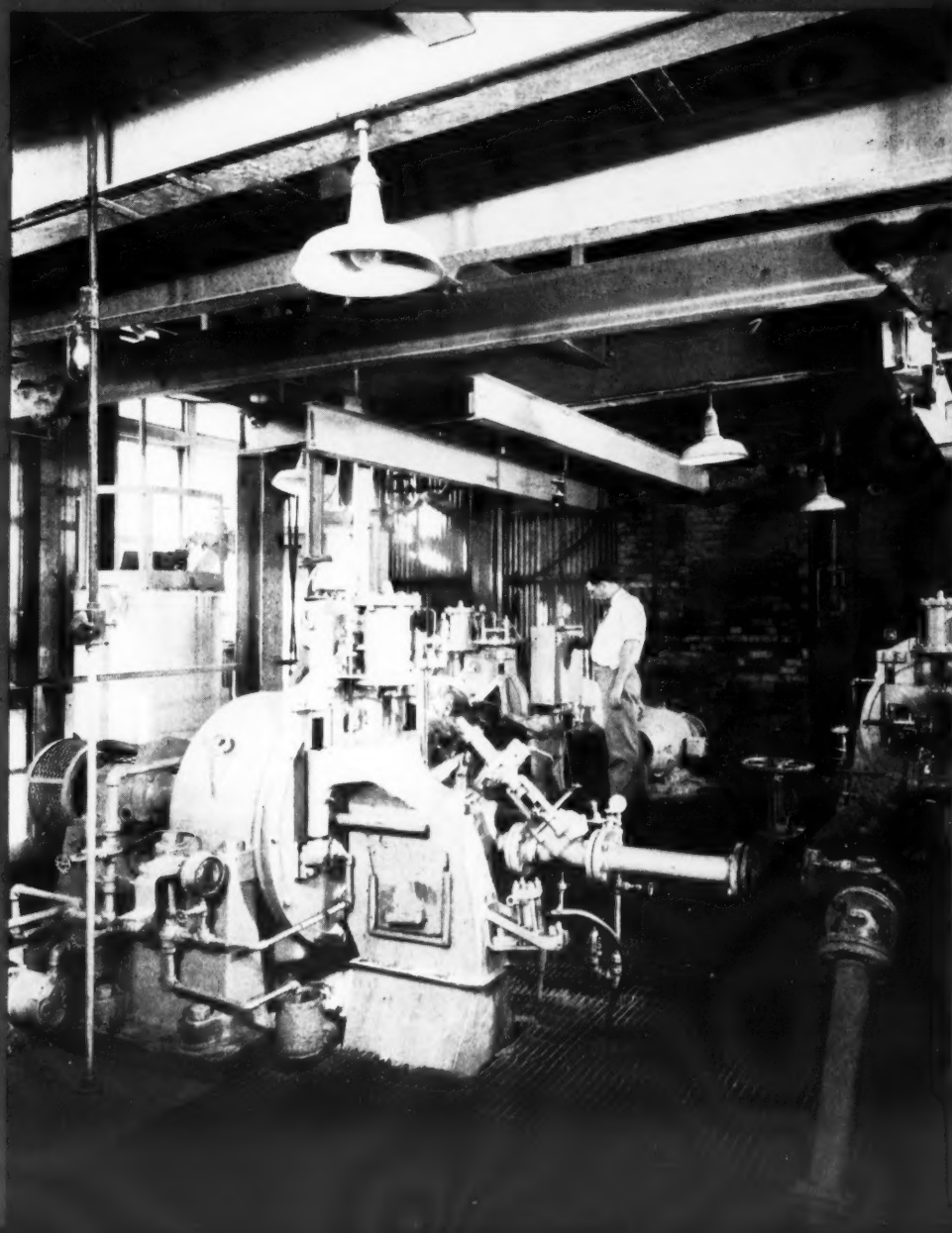
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The Cover Picture

One man operates new dehydrator equipment at Pennsylvania Salt Mfg. Co. for removal of sodium chloride from electrolytic caustic. Operation formerly required more rinse water, two men. Details on Page 8





A completely rebuilt motor is tested with dynamometer. This machine applies low voltage and overloads exactly as in actual usage.

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"That's Interesting"



Who said nobody ever does anything about the weather?

If experiments conducted atop Mount Washington, N. H., by Dr. Vincent J. Schaefer, General Electric Company weather scientist, are indicative, then Mark Twain's remark that "everybody *talks* about the weather but nobody *does* anything about it" is fast becoming archaic.

Speaking before the National Air Pollution Symposium at Pasadena, Dr. Schaefer revealed that, at higher temperatures, silver iodide in its tiny particle form is more effective in transforming supercooled clouds to snow than certain dusts, etc, which are believed used by nature.

Discussing effects of "seeding" atmosphere with silver iodide, Dr. Schaefer said rain would be produced or prevented, sunshine increased or lessened, and sudden thunder and hail storms with lightning would become rare. He emphasized careful control of seeding "if rapid progress is to follow in the field of weather modification."

Combine dual containers as single unit to ship resin and hardener

A unique container development simplifies shipment and use of materials, such as synthetic resin adhesives, which are supplied as separate components. This new packaging method offers a practical means of meeting the requirements of users who require relatively small quantities.

The Plastics Department of American Cyanamid Company recently made arrangements with The Nelson Company of Iron Mountain, Mich., to handle distribution of Urac Resin 185 in such a manner. This resin is a low pressure binding agent, especially designed for assembly work.

Charles J. Nelson was instrumental in arranging for this method of distribution of Urac 185. The five gallon and smaller containers are made in two sections, which are easily joined for shipment as a single unit. The upper section contains just enough hardener for the resin in the lower section. The resin may be mixed all at once, or in any desired proportionate quantity. Through this service small users are assured fresh stock. (As reported in Plastics Newsfront—Vol. 4, No. 3; American Cyanamid Company, 30 Rockefeller Center, New York 20, N. Y.)

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5280d	Polybutenes	5335	Stainless Steel Fabrication	5385	Liquid Flow Meters	5453	CO ₂ Analyzer
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5293b	Sodium Sulfhydrate	5349	Hydraulic Cylinders for Gate Valves	5402	Flexible Bronze Metal Hose	5467a	Weed Control in Small Grains
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5295a	Rhoplex WN-75	5351	Diaphragm Valves	5404	Pack-load Fork-truck System	5467c	Weed Control on Right of Ways
5295b	Rhoplex WN-80	5352	750-lb Compression Tester	5405	Electric Hoists	5467d	Weed Control with Chemical Sprays
5295c	Rhoplex FRN	5353	Furnace Gas-flow Indicator	5406	Screw-lift, Screwveyor System	5467e	Formulating Santobrite
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Additional items on reverse side

"That's Interest"

Flame-resistant synthetic wax

A flame resistant, non-toxic, can be prepared by reacting monoamylamines and tetrachloroanhydride, a recent patent of aniline reportedly raised the point. (U. S. I. Chemical Industrial Chemicals, Inc., N. Y.)

Butyl tubing improves gas analysis

Gas analysis equipment yields accurate results when Butyl is used in place of silicone rubber, because of its low permeability to air. Butyl is soft and flexible over glass fittings. It is resistant to oxidation. Available in sizes convenient for lab use, 1/4" and 3/16" diameters, 1/8" wall thickness. (Fisher Company, 717 Forbes St., Pittsburgh, Pa.)

"Like pulling teeth"

Using a welder to pull metal steady of joining it together is an unusual process used in making harrow teeth. The teeth formerly made from steel bars to a point on one end by skilled operators.

Now, a bar about 12" long between the welder terminals is applied, and when the part between the terminals is red hot, under pulls the jaws apart, the harrow points requiring no further operations. (As reported in Ohmite Mfg., Chicago 44, Ill.)

People who wear glasses

Protective helmets made of resin impregnated — with weight ratios in excess of a material including steel, are extremely cool and water-resistant and through. If desired, photos may be molded into the helmets will glow in the dark, a vital safety factor. These helmets have undergone the usual lab drop tests and other objects dropped from a height of 30' have fallen seriously. (E. D. Bull, San Francisco 3, Cal.)

Brighter lights

A specially prepared and formulated resin has been formulated for interior coating for incandescent bulbs. Developed jointly by Chemical Company and Charles Works, Lynn, Mass., the new bulb provides a greater and more uniform of light without the bright spot in the center of

(Continued on

DECEMBER, 1949

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5477	Switches	5533	Centrifugal Pumps	5586	Absorbent Dehumidifier	5639	"Wet-End" Pump Heads
5478	Dumpers	5534	Rotary Pumps	5587	Crosshead Guide Assembly for Plunger Sludge Pumps	5640	Air-operated Control Valves
5479	"Acetylene & Carbon Monoxide Chemistry"	5535	Roof Ventilators	5588	Gasket Cutter	5641	Tungsten Carbide Tipped Lathe Centers
5480	Woven Wire Conveyor Belts	5536	Lab Hot Plates	5589	Multitall Bags	5642	Welding Fittings
5481	Processing Equipment	5537	Solution Feeders	5590	Dry Chemical Extinguishers	5643a	Vibratory Feeder
5482	"Liquid Handling Equipment"	5538	Rubber Liners	5591	Atomizing Valves	5643b	Bin Vibrators
5483	Lightweight Cylinders	5539	Wire Screen Strainers	5592	Pipe Wrenches	5643c	Packers & Jolters
5484a	Kettle With Modified Paddles	5540	1/100 hp Motor	5594	Positive Pressure Pump	5643d	Vibrating Screens
5484b	Asbestos Mixer	5541	Cylinder-type Lab Filter	5595	High Current Resistors	5643e	Batch & Constant Weight Feeders
5484c	Top Mixer	5542	Centrifugal & Rotary Blowers	5596	Heavy-duty Compressors	5644	Carbon Dioxide Fire Protection Units
5484d	Soap Crutcher	5543	Water Stills	5597a	Vacuum Pumps	5645	Process Steam
5484e	Kettle With Turbine Baffles	5544	Pouring Spouts	5597b	Exhausters	5646	Corrosion-proof Coating
5485	Dust Collectors	5545	Bottle Oiler & Gauge	5597c	Tank & Vessels	5647	Vacuum Cleaners
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5487	Floor Valves	5547a	Sanitary & Brine Pumps	5598	Whiteprinter	5649	Duo-step Steam Traps
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5493	Unit-cooled Motors	5550c	Swing Sledge Mills	5605	Aluminum Fabrication	5653	Uses for Vacuum
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5502	Air Operated Hydraulic Pumps	5558	Capillary Bleeder for Bourdon Gauges	5614	Vertical Top-suction Pump	5662	Solenoid Valves
5503	Stainless Steel Tubing	5559	Non-toxic Dust Masks	5615	Stainless Steel Drums & Barrels	5663	Laboratory Equipment (Please state requirements)
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non-toxic, synthetic wax
by reacting a mixture of
and tetrachlorophthalic
patent states. Addition
edly raises the melting
Chemical News, U. S.
ls, Inc., New York 17,

Improves

Equipment yields more ac-
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of silicone or natural
its low permeability to
and flexible and fits
ittings. It is also highly
ion. Available in quan-
or lab requirements in
diameters; both with
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es St., Pittsburgh, Pa.)

teeth"

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n steel bar stock forged
end by skilled hammer

12" long is gripped
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the part of the bar be-
s is red hot, an air cyl-
ws apart, forming two
quiring no further op-
ated in Ohmite News—
cago 44, III.)

ear glass hats

made of Fiberglas —
— with strength-
cess of any other ma-
el, are extremely resi-
water-resistant through
fired, phosphorous pig-
ed into the material so
the dark, providing a
These hats have un-
lab drop tests. Also,
jects dropped on them
' have failed to affect
E. D. Bullard Co., San

ed and fortified silica
formulated as an in-
r incandescent light
jointly by Monsanto
and Champion Lamp
, the new coating pro-
d more uniform diffu-
hout the prominent
center of the bulb.

Continued on third cover)

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operating tempera-
ture, 1000° F.)

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equipment intended
for processing phar-
maceuticals.

HASTELLOY reactor
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smelting process.

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vessel.

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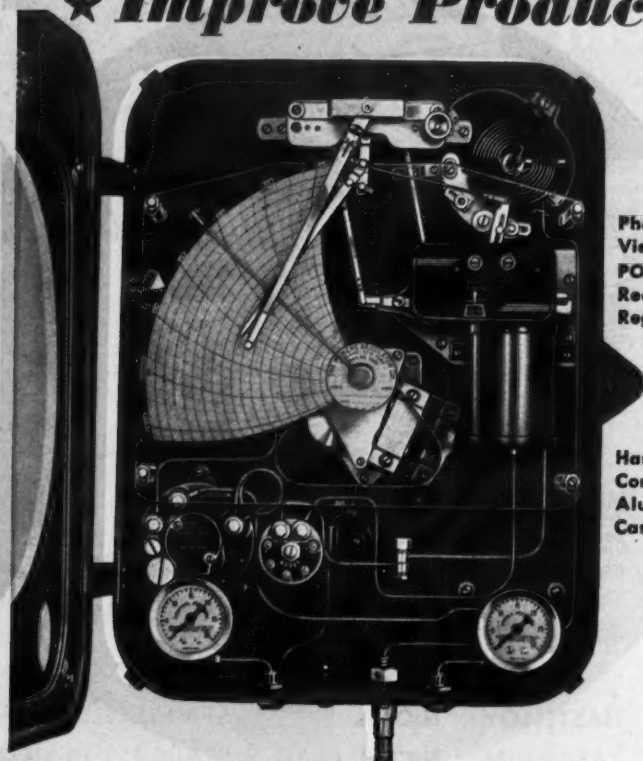
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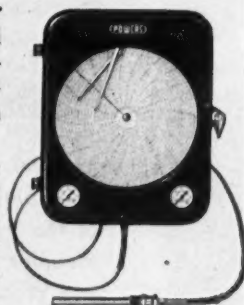
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For Better Temperature and Humidity Control and valuable aid in selecting the right instruments for your requirements—phone or write our nearest office. There's no obligation. The Powers Regulator Co., 2756 Greenview Ave., Chicago 14, Ill. • 231 E. 46th St., New York 18, N.Y. • 1808 W. Eighth St., Los Angeles 5, Calif.

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Anyone Can Earn A Degree— Only A Few Achieve Success

By
FRANCIS M. ANABLE

Vice-President
Victor Chemical Works,
Chicago, Ill.

Ch. E. degree, Clarkson Col. of Tech., 1924. Joined Victor as chem. eng. 1927. Foreman, night sup., then sup., control lab, oxalic and formic acid div's. 1 yr. research, Victor res. and serv. lab. Ass't. dept. hd. and div. sup. Sup't. Prod., Chgo. Hts. plant, 1944. Ass't. to Exec. V.P., 1946. Gen'l. Prod. Mgr., 1948. Elected V.P. Chg. of Prod., June 6, 1949.



VOLUMES have been written on how to achieve successful employee-employer relationships. From my experience, the following fundamentals are of vital importance to graduate (and veteran) chemical engineers:

The graduate, upon entering industry, should be humble and considerate of his new associates. This often is not the case. Our educational facilities, industry, and the individual—all three—share the blame. An entire article could be written regarding the responsibilities of each, and the means of alleviating this condition.

In doing *his* part, the individual should study his associates. Frequently he fails to analyze the "old timers" and determine why they have been successful in their respective fields. Often their success has been accomplished without benefit of formal education. This gives the diploma-bearer no license to "look down his nose."

Anyone with sufficient time and money can earn a degree. Few can achieve success.

Seek employment in a field which you like. If you are not happy in your work it will be reflected in your everyday contact with your associates. Teamwork will be lacking.

Like people. If you don't, your output may eventually be limited to your own two hands.

Work hard when you work; play hard when you play. Don't mix the two. Ambition still is recognized in American industry, despite various ideas to the contrary advanced in the last two decades throughout the world.

The new engineer is informed of many company rules and policies. Usually it is difficult for him to recognize their relative importance. Rules and regulations dealing with safety, housekeeping and the labor union (if one is involved) must be followed carefully. Generally the most minor infraction or misinterpretation by a new college man can be counted on to "make headlines."

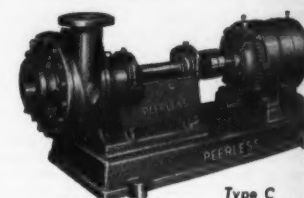
The new engineer should take steps to continue his education after entering the industrial world. This can be accomplished in many ways, depending on community facilities. A program that will broaden his general education should be followed, and if his ambitions are in production and supervisory fields, this training should be intensified.

C

TYPE

PEERLESS Centrifugal PUMPS

FOR PROCESS SERVICES



Type C



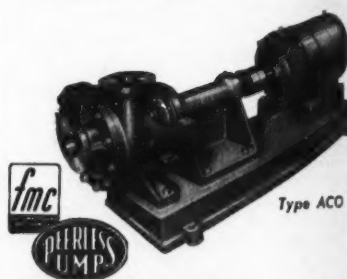
Designed to handle clear liquids which can be of corrosive nature. Single-stage, single-end suction design; range of capacities from 10 to 1200 g.p.m.; heads up to 231 feet; maximum working pressure of 150 lbs.



Utilizes an open impeller to permit pumping of fluids up to 750° F with solids in suspension, brines, sludges, etc. Capacities from 10 to 1200 g.p.m.; heads to 231 feet; maximum working capacity of 150 lbs. All forms of drive. Both of the above pumps are described in Bulletin 810.



Especially designed to pump caustics and acids. Handles fluids up to 800 g.p.m.; heads to 231 feet; maximum working pressure of 150 lbs. Temperatures should not exceed 300° F. Described in Bulletin D-2400.



Type ACO



PEERLESS PUMP DIVISION

FOOD MACHINERY & CHEMICAL CORPORATION
Factories: Indianapolis, Ind.; Los Angeles 31, Calif.
District Offices: New York 5, 37 Wall Street; Chicago 40, 4334 North Broadway; Atlanta Office: Rutland Building, Decatur, Georgia; Dallas 1, Texas; Fresno, California; Los Angeles 31, California.

When inquiring check CP 5262
on handy form, pgs. 2-3

When inquiring check CP 5261 on handy form, pgs. 2-3

CHEMICAL PROCESSING PREVIEW

The Magazine of
Processing, Its Control and Development

VOL. 12

DECEMBER, 1949

NO. 12

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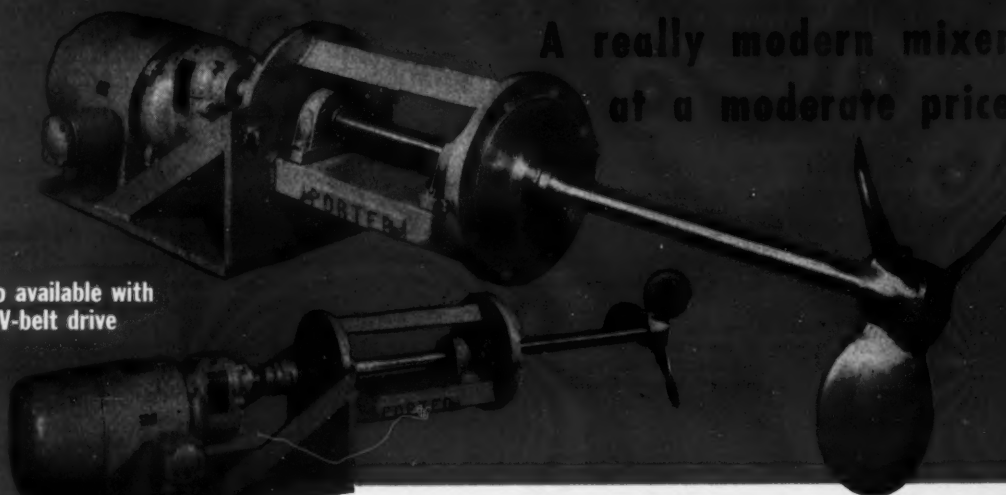
DECEMBER, 1949

PORTER *Better-Built* PROCESS EQUIPMENT

NOW FOR THE FIRST TIME...

A really modern mixer
at a moderate price

Also available with
V-belt drive



Here it is—a side-entering mixer with everything an up-to-date mixer should have, yet priced to fit a limited budget. This new side-entering mixer is equipped with the exclusive Porter self-sealing shaft and a stuffing box that can be repacked from the outside without draining tank. Designed and built to give many years of trouble-free service on almost any kind of liquid mixing job, this new agitator will save you time, money, and labor, and add to your tank capacity. Write for complete details.



PORTER-BUILT means *Better Built*

LUBRICATED
PLUG VALVE



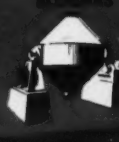
TOP ENTERING
MIXERS



DOUBLE RIBBON
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BLENDERS



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BALL MILLS



PUMPS



H. K. PORTER COMPANY, Inc.

PITTSBURGH 1, PENNSYLVANIA

District Offices in Principal Cities

When inquiring check CP 5263 on handy form, pgs. 2-3

Every part corrosion-resistant to save you money! This fully-exploded view shows how the Ampco Pump is designed and constructed. All sizes are available in pedestal or close-coupled types.



Ampco Pumps give maximum efficiency plus 5 extra features . . . at no extra cost!

Ampco Pumps resist corrosion, erosion, and cavitation without loss of efficiency.

Ampco Pumps are designed for high efficiency — and maintain it because they are made of correctly mated Ampco alloys. These alloys hold wear to an absolute minimum; they have a natural resistance to the destructive action of corrosion, erosion, and cavitation.

Here are five "plus" features usually found only in special pumps. They add \$50.00 or more to the price you pay (when you can get them) — and lengthen delivery by weeks. Yet you get them in the rugged Ampco Pump — all for a standard pump price.

1. Corrosion-resistant impeller and casing — made of Ampco (aluminum bronze) alloy with an average tensile strength of 75,000 p.s.i., Brinell 125 (3000 kg.).

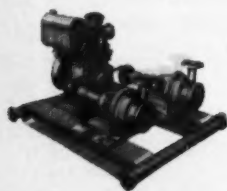
2. Corrosion-resistant shaft — made of Ampco (aluminum bronze) alloy with a fatigue life of 100,000,000 cycles at 37,000 p.s.i., yield 65,000 p.s.i., elongation 17% in 2".

3. Hard, corrosion-resistant sleeve (with special, selected packing) — made of Ampco (aluminum bronze) alloy with an average tensile of 85,000 p.s.i., Brinell 331 (3000 kg.).

4. Wear and corrosion-resistant wearing rings — made of Ampco (aluminum bronze) alloy properly mated with impeller to insure maximum wear and corrosion-resistance with yield strength of 38,000 p.s.i., 20% elongation in 2".

5. Frame or adapter made of Ampco (aluminum bronze) alloy to insure complete corrosion-resistance of the entire unit.

Save — both on initial cost and replacement costs. Insist on Ampco Pumps. Tested and approved in petroleum, chemical and food processing industries, and in breweries. Get complete information — today.



Special Pumps — twin Ampco centrifugal pumps powered by a gasoline engine — for oil-field service.

Ampco Metal, Inc.
Milwaukee 4, Wisconsin



West of the Rockies, it's the Ampco West Coast Plant, Burbank, Calif.

Ampco Metal, Inc.
Dept. CPP-12 Milwaukee 4, Wisconsin

Send me Bulletin 85 on Ampco Centrifugal Pumps

Position _____

P-2A

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Company _____

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City _____

() State _____

When inquiring check CP 5264 on handy form, pgs. 2-3

Highlights

(Continued from front cover)

These articles have been selected by the Editors as having unusual interest

★ Treat Complex Tank Car Wash Waste to Avoid Water Supply Pollution . . . Treated effluent is an inoffensive, very dilute salt solution, which will not cause any water supply pollution . . . 10

★ High-pressure Condensate Return Increases Paper Production, Cuts Coal Consumption . . . N. Y. felt mill makes fuel savings of 20% by using CB pump between paper machine and boiler . . . 10

★ Cut Caustic Consumption 50% by Recirculation through Scrubber . . . Achieve more complete conversion of caustic used to reduce concentration of H₂S in vented air . . . 15

★ Prevent Foaming in 5000 Gallons of Tar Emulsion with 1-oz Capsule of Silicone Compound . . . Utility company eliminates boil-overs in handling by-products of water gas plant . . . 16

★ Acrylic Aldehyde Now Available in Commercial Quantities . . . Contains aldehyde group, ethylenic linkage which can be reacted individually or simultaneously . . . 17

★ Great Mechanical Stability Shown by Aqueous Dispersions of Acrylic Resins . . . 3 grades deposit continuous, greaseproof films in 1 pass, even at low coating weights . . . 20

★ Intermediate Acid Acts as Difunctional Compound . . . Meta-benzenedisulfonic acid is effective electrolyte additive, catalyst, acid curing agent . . . 25

★ Geiger Counter Adapted for Steel Analysis . . . Expected to be faster than the direct-reading spectrograph . . . 33

★ All Data on Flow Characteristics of Viscous Liquids Are Given by Rotational Viscometer . . . Measures and records from 0.001 to 1000 megapoises at various rates of shear . . . 40

★ Perform Many Chromatographic Determinations Simultaneously with 1 Operator . . . Analyzer uses combination of ultraviolet-stimulated fluorescence, selective adsorption on silica gel . . . 42

★ Pick Up 2300-lb Loads of Cases Without Pallets by Attaching Grab-arms to Lift Truck . . . Accessory permits handling products in paperboard cartons; companion device moves 1 to 4 drums at a time . . . 48

★ Air-powered Vibrator Table for Packaging, Settling Operations . . . Vibrator mechanism is actuated by knee valves; has speeds to 1950 vibrations per minute . . . 53

★ Obtain 1000-psi Oil Pressure for Hydraulic Units from 90-psi Air Lines . . . Air-operated pump is continuous-acting, consumes 3.5-cfm air to pump 1.5 gpm oil . . . 71

★ Spray-dry 2 to 7 Tons/Day with Unit Designed for Pilot Plants . . . Dryer has simplified semi-automatic operation; is compact, easy to clean . . . 73

a remarkable new label



faster to apply...easy to remove!

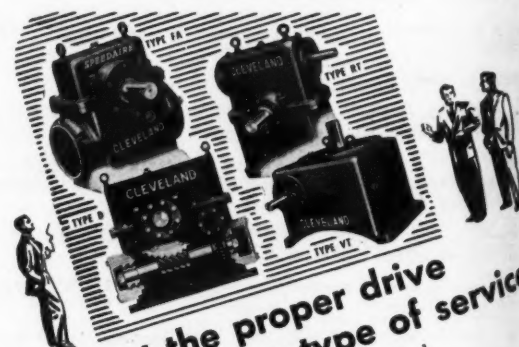
The remarkable, new "active adhesive" of Kum-Kleen pressure-sensitive Labels seals them to the most difficult-to-label surfaces without heat or moistening...labels never curl or pop, even in temperature and humidity extremes. Because they're peelable, they may be placed on parts and equipment in the exact spot they should go. Will not mar the surface or leave a trace.

Kum-Kleen labeling pays its own way! Many users say the time and money savings of Kum-Kleen dispensing methods pay cost of labels!



ADDRESS: DEPT. CP-12
AVERY ADHESIVE LABEL CORP.
MONROVIA, CALIFORNIA

When inquiring check CP 5265 on handy form, pgs. 2-3



To select the proper drive for any type of service

GET your copies of the latest Cleveland types and sizes of worm gear speed reducers —including rating tables, dimensional diagrams and data for both standard and fan-cooled units. Ask for Catalog 200 for standard drives and Catalog 300 for Speed-air (fan-cooled). The Cleveland Worm & Gear Co., 3257 E. 80th St., Cleveland 4, O.

CLEVELAND

Worm Gear
Speed Reducers

For personalized service: Write or phone John E. Milliken Cleveland exch. Vulcan 3-4560

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- * Dries Air to 15 Grains Moisture per Lb, at 85°F Dry Bulb, Without Refrigeration . . . Dehumidifying spray is hygienic hygroscopic chemical containing no salts or solids . . . 92
- * Heats 31,500 Gallons of Water per Hour Noiselessly . . . Heater can be regulated manually or automatically; 9 sizes available . . . 97

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Over 32,000 Circulation in Chemical Process Plants

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DECEMBER, 1949

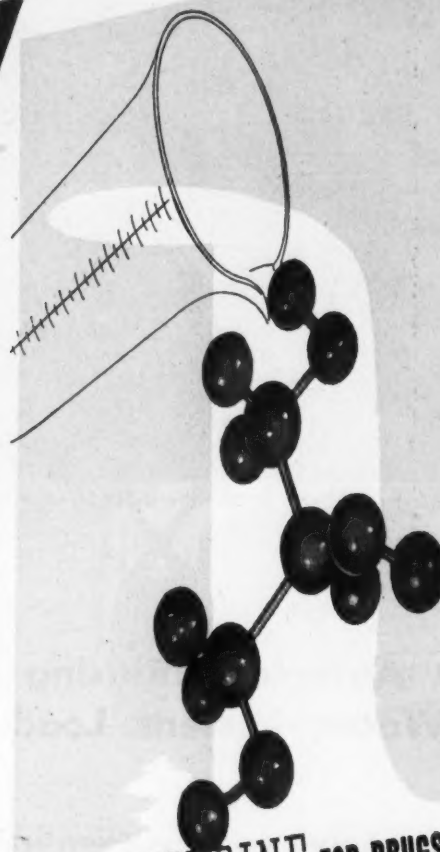
First Time Offered!

a practical review of
**GLYCERINE applications in
Drugs and Cosmetics—**

WHERE? . . . How? . . . Why? . . .
If you're looking for the answers to these questions on glycerine usage in the drug and cosmetic industries—here's the most up-to-date information available!

"Why Glycerine for Drugs and Cosmetics?" has been reviewed by prominent medical authorities, technical consultants, and the Research Laboratories of the Glycerine Producers' Association. Contains detailed information by charts and tables of the physical and chemical properties of glycerine—the origin and development of this amazingly useful alcohol—grades and their applications. 16 pages of practical, useful data!

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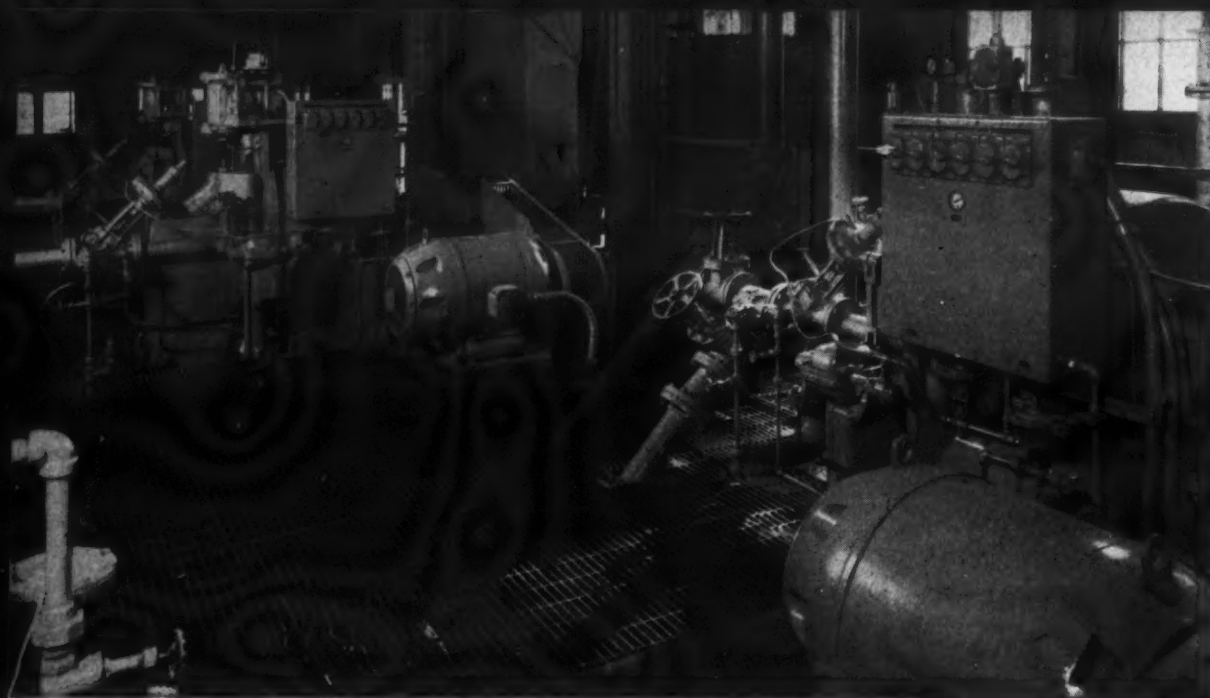


WHY GLYCERINE FOR DRUGS AND COSMETICS?

GLYCERINE PRODUCERS' ASSOCIATION

295 Madison Avenue, New York 17, N. Y.

When inquiring check CP 5267 on handy form, pgs. 2-3



General view of Super-D-Hydrator installation at Pennsylvania Salt Manufacturing Co., Wyandotte, Mich.

Completely Automatic Rinsing of Crystals Reduces Amount of Wash Water; Lessens Load on Evaporators

Savings estimated from test at Pennsylvania Salt Manufacturing Company, Wyandotte, Mich., justify installation recently completed with results confirming test results.

PROBLEM: In the removal of sodium chloride from electrolytic caustic, at the Wyandotte plant of Pennsylvania Salt Manufacturing Company, with existing equipment, rinse water consumption was high. Two men were required to operate the equipment.

Solution: In this installation, a Super-D-Hydrator was secured to perform the rinsing and dewatering operation. Preliminary to the dewatering operation, an electrolytic process is employed to produce caustic soda by passing an electric current through an almost saturated brine solution. The electrolytic cells, however, convert only about 40% of the sodium chloride in the brine to produce caustic soda, chlorine, and hydrogen. The remaining sodium chloride must be removed for recovery of the caustic soda. Recovery and concentration of the caustic soda is carried out by evaporation with simultaneous crystallization of the sodium chloride.

In operation, the Super-D-Hydrator is completely automatic, feeding a slurry of caustic soda and sodium chloride into a horizontally mounted, rotating perforated bowl, where the greater portion of the caustic soda solution is centrifuged away, after which nearly dry sodium

chloride is rinsed with a fine spray of water.

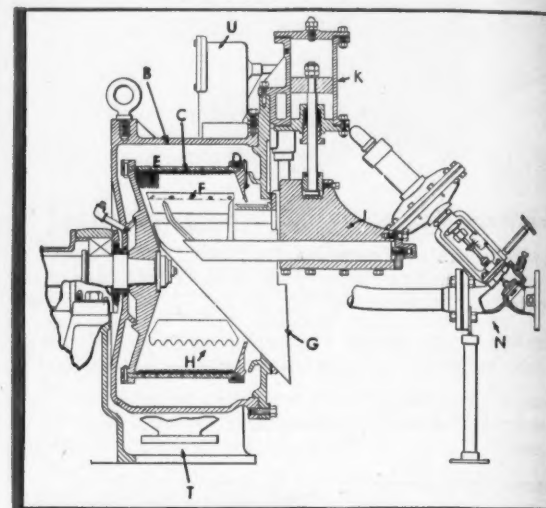
Where desirable, rinse water carrying a small amount of caustic soda may be separated from the higher concentrated, centrifuged mother liquor. Sodium chloride is centrifuged to approximately 2% moisture, after which it is automatically discharged from the machine. Entire cycle of operation, depending on size of unit, requires from 45-90 seconds and produces 60 to 120 lbs. of nearly dry sodium chloride.

Feed is taken directly from the evaporators and is circulated by pump to the centrifuges from a central feed tank. Feed enters the units from taps on the circulating line.

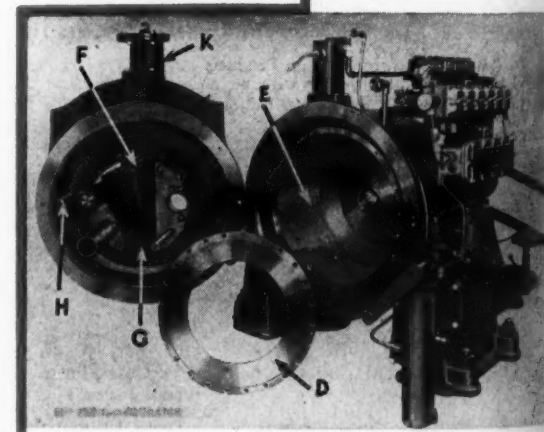
Machines on caustic service at this installation are all monel construction. Can be made in open construction or completely enclosed and fume-proof.

Results: New process requires one operator. Amount of rinse water needed to maintain low caustic level concentration in sodium chloride is reduced, thus resulting in saving in steam and lower demand on evaporator capacity.

New Solutions OF PROCESSING PROBLEMS



- B—Casing
- C—Perforate Basket
- D—Lip Ring
- E—Screen
- F—Unloader Knife (Partially raised)
- G—Chute (Crystal Discharge)
- H—Crystal Distributor
- J—Unloader Yoke
- K—Unloader Cylinder
- N—Feed Valve
- T—Effluent Discharge
- U—Limit Switch



When compared to older methods, savings are indicated to justify installation.

While operating on feed slurry containing 12-25% caustic soda in the mother liquor and 35-45% of free sodium chloride, the unit produces sodium chloride containing a maximum of 0.15% caustic soda and a maximum of 2.0% moisture. Depending upon the requirements, the capacity of a single machine may vary from 3000-8000 pounds of sodium chloride per hour. These

CHEMICAL PROCESSING Preview

conditions of operation are maintained while using as little as 25 gallons of rinse water per ton of dry sodium chloride produced.

When feeding a slurry containing 40% caustic soda in the mother liquor and 15-25% of free sodium chloride, the machine produces sodium chloride containing less than 3% moisture and less than 0.40% caustic soda. While operating under these conditions, only 45 gallons of rinse water per ton of dry sodium chloride is consumed, resulting in an absolute minimum dilution of the caustic soda.

Other applications on which this equipment has proven to be highly successful include: ammonium sulfate, copper sulfate, nickel sulfate, boric acid, sodium bicarbonate, borax, zinc sulfate, paradichlorobenzene, monochloroacetic acid and many more organic and inorganic salts.

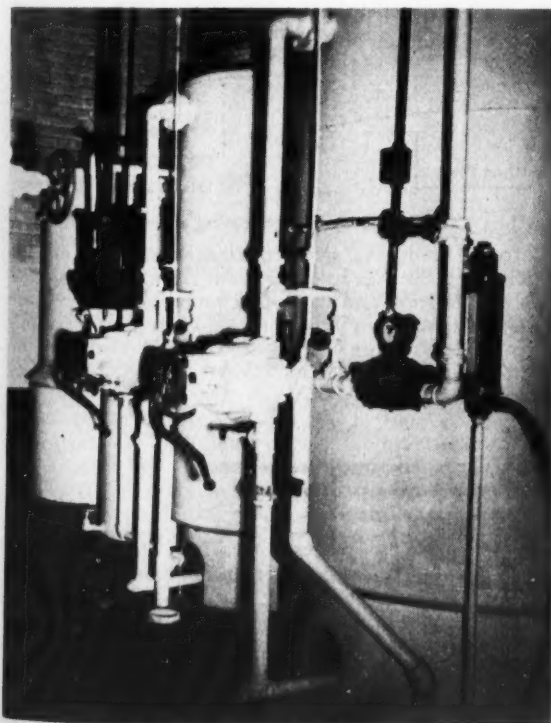
Source: Super-D-Hydrator is a development of the Sharples Corporation, Dept. CP, 23rd and Westmoreland Sts., Philadelphia, Pa. . . or for more information check CP 5268 on handy form, pages 2 and 3.

Brewery Removes All Carbonates from Raw Water Containing 752.4 ppm

Highly undesirable properties affecting appearance, flavor of beer, eliminated by simple de-ionizing

PROBLEM: Water in Regina, Saskatchewan is exceptionally unstable, containing quantities of minerals beyond the treating capacities of ordinary purifying methods. Drewrys Regina, Ltd., of that city, constantly tried to improve their water treatment methods to reduce to a minimum characteristics of the local supply that would affect flavor, color.

(Continued on page 13)



Tanks of ion-exchange de-ionizing system

DECEMBER, 1949

Only Acme Sulphur Burner

ALL 3 BASIC REQUIREMENTS

- 1 CONTROLLED, UNIFORM PRODUCTION OF SO₂
- 2 COMPLETE COMBUSTION
- 3 CONTINUOUS OPERATION

An ordinary sulphur burner, which burns solid sulphur on a tray or rotating cylindrical surface, cannot provide a definite, constant burning rate. Since ordinary sulphur contains a small percentage of organic matter, this matter accumulates as a carbonaceous scum on the surface of the burning sulphur, and gradually extinguishes the fire. In order to overcome this factor the Acme Sulphur Burner is operated at a controlled rate sufficient to burn off this scum. Also, in an ordinary burner, the addition of a fresh charge of sulphur to the burning surface disrupts the burning rate for several hours. The Acme Sulphur Burner has a special feeding device that feeds melted sulphur to the burner in a manner that does not disturb the burning surface, at the same time maintaining a constant level of burning sulphur. Thus, uniform production, complete combustion, and continuous operation result.

The Acme Sulphur Burner will operate equally well under pressure or vacuum, and the manufactured gas can be discharged directly to the absorbing apparatus. Efficient operation results either for single burner or battery operation. Where required for large scale production, automatic operating controls can be furnished.

ACME

Processing Equipment

When inquiring check CP 5269 on handy form, pgs. 2-3

Experimental quantities NOW available

**Good-rite
CHEMICALS**

β -Chloropropionic acid
 $\text{ClCH}_2\text{CH}_2\text{COOH}$
 β -Mercaptopropionic acid
 $\text{HSCH}_2\text{CH}_2\text{COOH}$

Recently added to the Good-rite chemicals line, these organic acids may have possibilities for you as acids, or as intermediates to form esters, amides or salts. Write for technical data. Please address Dept. CE-12, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio.

B. F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

GEON polyvinyl materials • HYCAR American rubber • GOOD-RITE chemicals and plastics

When inquiring check CP 5270 on handy form, pgs. 2-3

Page 10

Treat Complex Tank Car Wash Waste to Avoid Water Supply Pollution

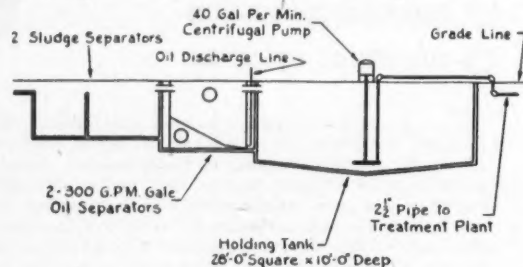
Treated effluent is an inoffensive, very dilute salt solution which will not cause any water supply pollution

PROBLEM: Cleaning operations of car tanks prior to repairs or re-use, are performed at the West Colton, Calif., plant of General American Transportation Corp., by steaming and washing. Steam condensate and wash water cannot be discharged into rivers or dissipated underground by diffusion without treatment, as it would cause heavy pollution of regional water supply.

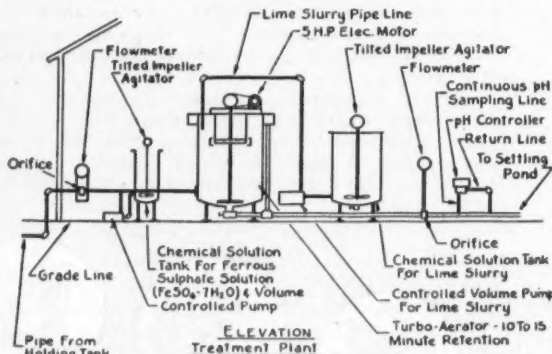
Solution: Tank cars are segregated according to the last load carried. Waste from cars having been used to ship water insoluble organic compounds (oils, petroleum products, solvents, gasoline) are passed through a mechanical oil separator.

Overflow (combustible products) is burned. Underflow is collected in an equalizing basin, where it is mixed with wastes containing water-soluble materials (such as sulfuric acid, wine, syrup, etc.). Composite waste is treated with ferrous sulfate and lime in turbo aerators, resulting in the formation of gelatinous ferrous hydroxide, which adsorbs the impurities and is simultaneously oxidized to form heavy ferric hydroxides flocs.

The slurry is settled and/or filtered. Operation of the



**ELEVATION
Separators & Holding Tank**

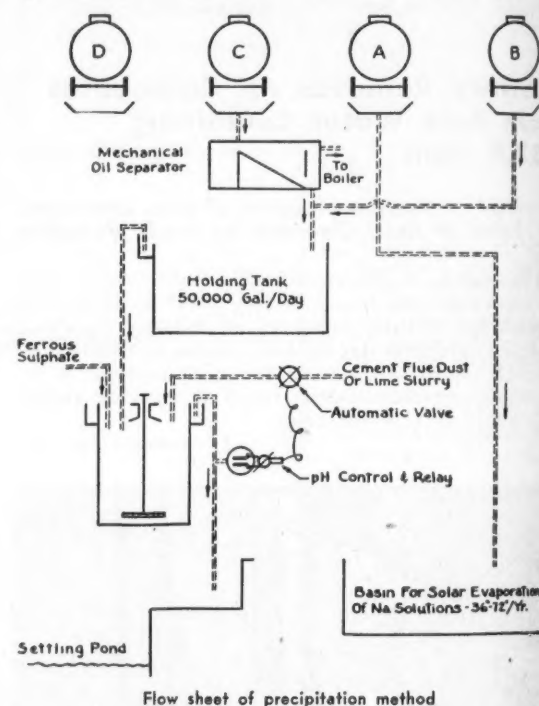


**ELEVATION
Treatment Plant**

treatment installation is entirely automatic, and requires only 20-30 minutes labor per week (for checking the electrodes).

Results: Effluent is an inoffensive, very dilute salt solu-

tion, which will not cause any water supply pollution. Treatment plant has met all requirements of the local health authorities. Several other installations are being built at the present time, some of them using modified systems. Treatment method can be adapted to meet most specific conditions.



Flow sheet of precipitation method

Source: Industrial waste treatment works for complex wash waters such as resulting from the cleaning of tank cars are designed, and the special process equipment built by General American Transportation Corp., Dept. P & W, Dept. CP, 135 South LaSalle St., Chicago 90, Ill. . . or for more information check CP 5271 on handy form, pages 2 and 3.

High-pressure condensate return increases paper production, cuts coal consumption . . .

N. Y. felt mill makes fuel savings of 20% by using CB pump between paper machine and boiler

Problem: When Bonafide Mills, Inc., purchased a board mill at Stockport-on-the-Hudson, N. Y., in 1946, they estimated that only about 50% of the condensate from the paper machine was put back into the boilers. There were no traps on any of the dryers or dry headers. Each dryer discharged into one large manifold, the con-

CHEMICAL PROCESSING Preview

densate being sent through this manifold to flash tank. Flash steam was used for heating white water, and condensate was pumped back to the boilers.

The entire machine was repiped, and two large traps, capable of taking care of all paper machine condensate, were installed. While this reduced coal consumption from about 60 to 45-50 tons per day, technical men of Bonafide realized that even greater economies could be obtained by returning the condensate directly to boiler at higher pressure, avoiding flashing and increasing boiler efficiency.

Solution: By using a CB condensate pumping unit, it is now possible to return the condensate to boiler at pressure of 175 psi and temperatures of 275-290°F. Condensate enters pump at 48 psi. Boiler generates steam at 160 psi. This steam passes through pressure reducer which cuts pressure to 50 psi, to give temperature of 297°F in drums of paper machine.

This type of unit consists of a centrifugal pump and jet pump working together. The specially designed centrifugal pump draws some water (condensate) from a thermofin priming loop and forces it through the jet. This induces positive flow of condensate, air and gas from the process equipment drainage line through the jet pump, priming the loop and the automatically vented air separation chamber. From this chamber the condensate goes to boiler.

Boiler feed water is made up in open heater which uses low-pressure condensate as source of heat. Feed pump sends this water to boiler.

Results: After installation of CB unit, production of paper jumped substantially, and daily coal consumption decreased from 45-50 tons to 28-30 tons. While these savings are partially due to some other changes the company made, Bonafide contributes 20% of the savings directly to the condensate return pump.

Latest reports are that production figures are still climbing. The plant has reached weekly outputs as high as 450 tons of paper.

Source: The CB system is a product of Cochrane Corporation, Dept. CP, 17th St. below Allegheny Ave., Philadelphia 32, Pa. . . or for more information check CP 5272 on handy form, pages 2 and 3.

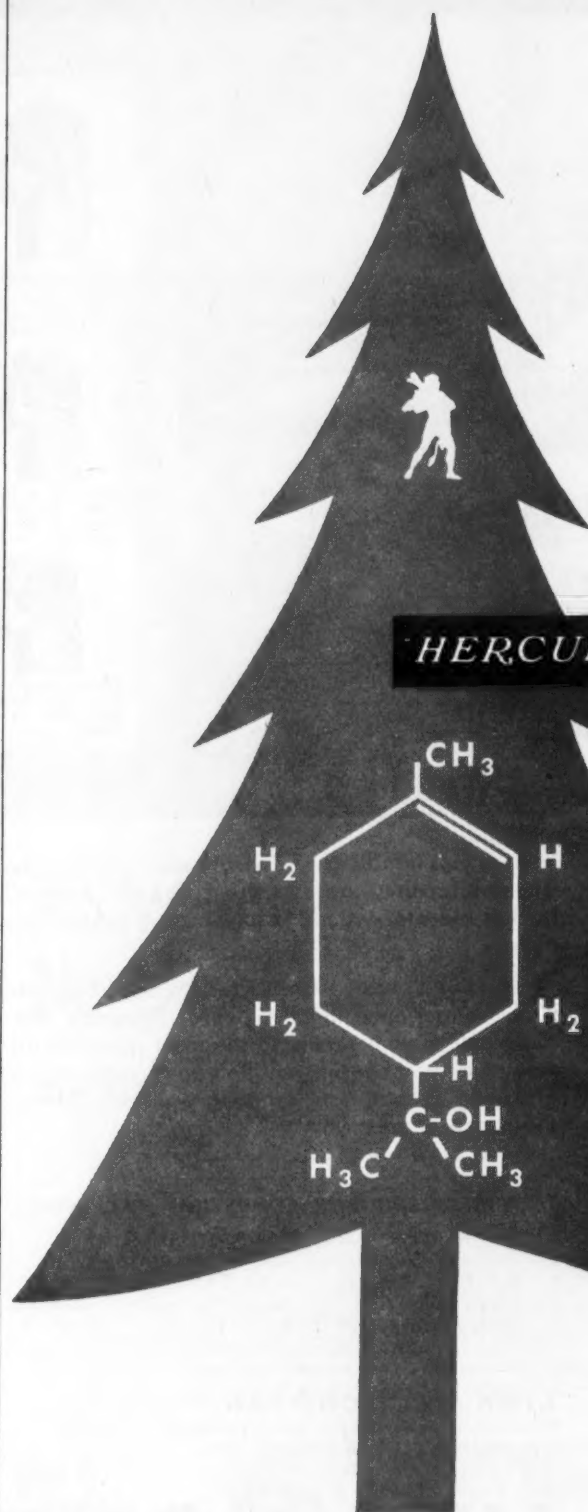
Speeds collection of polarographic data

A variety of polarographic analyses in research and industrial-process control laboratories is possible with Type E Advanced Electro-Chemograph, according to a 4-page illustrated folder. A section of Speedomax chart record, which is constantly visible to operator, is reproduced to show effect of damping upon four diffusion waves, recorded "side-by-side" through use of a continuously-adjustable recorder zero.

Literature describes this all-AC or battery-operated equipment as including, in one compact cabinet, a Speedomax Type G microampere recorder, a polarizer, and, for 115-v 60-cycle operation, a power supply unit. The centralized control panel is shown, as are switches for obtaining any one of 11 current ranges, four degrees of damping and three cathodic or anodic polarizing ranges applied at 200 mv per min.

Also shown is the Dropping-Mercury Electrode Assembly used with either of two interchangeable polarizing cells for precise or routine analyses. Folder EM9-90(1), issued by Leeds & Northrup Company, Dept. CP, 4934 Stenton Ave., Philadelphia 44, Pa. When inquiring specify CP 5273 on handy form, pages 2 and 3.

DECEMBER, 1949



- penetrate
- wet
- disperse
- dissolve
- disinfect
- deodorize
- preserve
- degrease

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improve many products and processes

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INCORPORATED
940 Market Street, Wilmington 99, Delaware

NP9-1

When inquiring check CP 5274 on handy form, pgs. 2-3

Got a Job for an Elevator?



Let LINK-BELT Show You the Right Type of BUCKET ELEVATOR

Bucket elevators handle many different materials, under differing conditions, and for that reason, Link-Belt manufactures three major types of bucket elevators. For best results in handling any specific material be sure the elevator you choose has the required features.

For instance, there are loose, free-flowing materials which will not be harmed by a certain amount of dropping or tossing at high speeds. Ashes and coal are typical, and such materials can be handled satisfactorily with the centrifugal discharge type, running at high speed, with high volume.

Friable materials which should be protected against breakage or degradation require the slower speed type, with continuous buckets to bring up the capacity. Materials that tend to stick in the bucket, and not readily discharge at high speed, are satisfactorily elevated in the Perfect Discharge type, which completely inverts the bucket and allows the contents to drop out.

For mass handling of delicate pieces in process of manufacture, there is the Link-Belt "Interno" bucket elevator, which assures extra gentle handling.

Link-Belt's vast manufacturing facilities and broad experience in all types of materials handling assure your receiving the most practical advice when you consult Link-Belt on any conveying, elevating or materials handling problem. Contact the office nearest you.

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Belt Conveyors	Apron Conveyors
Screw Conveyors	Oscillating Conveyors
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Chain Conveyors	Bucket Elevators
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LINK-BELT COMPANY Chicago 8, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Houston 3, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities. 11,546

LINK-BELT
CONVEYING MACHINERY
"THE COMPLETE LINE"



Perfect discharge type
—Slow speed, for materials which will not readily discharge at centrifugal speeds.



Continuous Bucket Type
—High capacity at slow speed or for friable materials.



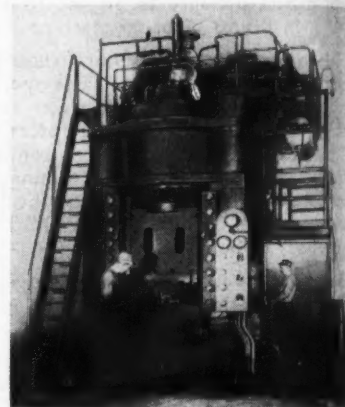
Centrifugal Discharge Type
—Suits most products. Runs at Higher Speeds.

NEW SOLUTIONS

Reduce wear on press pump; leaded hydraulic compound replaces oil . . .

no pump repairs in two years

Problem: A large forging press was equipped with a horizontal plunger pump which was rotary in action and adjustable at constant speed for volume. When lubricated by high grade mineral oil, the pump wore so badly it had to be returned to the factory every six months for repairs at a cost of \$1,320.00.



Forging press uses leaded compound in plunger pump

Solution: A specially leaded compound was substituted for the mineral oil, as the hydraulic fluid. This compound has low viscosity and pour point coupled with high film strength. Viscosity is 350 seconds Saybolt Universal at 100°F. It has a minus 25°F. pour point, and a minimum film strength of 25,000 psi.

Most hydraulic mineral oils do not have sufficient film strength and lubricating value for severe service requirements of some present-day equipment.

Results: Press has operated for over two years with no repairs to the pump. Compound's low pour point of minus 25°F. corrected sluggish operation of other presses. Negligible frictional heat generation obviates cooling in summer.

Also, anti-foam qualities and resistance to sludging has contributed to exceptionally long service.

Source: "Leadolene" No. 40 is made for average presses, "Leadolene" No. 20 for machine tools, etc. by Brooks Oil Co., Dept. CP, 934 Ridge Ave., Pittsburgh 12, Pa. . . or for more information check CP 5275 on handy form, pages 2 and 3.

For more information on product at left, specify CP 5275 see information request blank between pages 2-3.

Brewery Removes (Continued from page 9)

Regina raw water compares most unfavorably with that of six important beer producing sections in the United States. One respect in which it is particularly undesirable is excessive carbonates. Accepted authorities state that the most desirable water for brewing should be low in calcium and magnesium carbonate content, preferably not over 50 ppm. Regina raw water has total hardness (as CaCO_3) of 752.4 ppm.

A cold process softener was tried, which (with aid of two sand filters) produced a water that was slightly colored.

It produced water with a total hardness (as CaCO_3) of 259.9. It contained light brown suspended matter. Used as a general purpose water it cost 31.2c per thousand Imperial gallons (26c per 1000 U. S. gallons). When used as a process water, it had to be boiled to eliminate calcium and magnesium carbonates.

Improvements in this process achieved a total hardness of only 202.0 ppm but this could not be maintained consistently for precise control is extremely difficult. Mechanical failures and irregularities produced waters of varying qualities.

No beer with characteristic hop flavor can be produced with carbonate waters. Hop flavor of worts, free from carbonates, is pure and agreeably bitter; with carbonates, it is insipid, flat and astringent. In working with waters rich in carbonates, it is obligatory to reduce the quantity of hops.

Carbonates unfavorably influence quality and fermenting capacity of yeast. They render a wort more viscous, impeding clarification, making drainage of grains more difficult and increasing gravity of the last runnings. Carbonates neutralize acid in mash and wort; they darken final product and decrease yield. They injuriously affect hop-bitter acids responsible for the fine flavor of beer.

Solution: Of a number of methods investigated, the most entirely satisfactory was a two-bed system depending on the properties of ion-exchange resins. There are two general types of resins: one adsorbs positively charged ions, like calcium and magnesium ions; the other adsorbs negatively charged ions, such as the carbonate, chloride and sulfate ions, and releases its supply of hydroxyl ions.

Results: After passing through tank beds of each of these resins, water finally emerges essentially as free from dissolved material as distilled water. Beer made with this water is of better quality and more mellow. Harsh bitterness and laxative effect are eliminated and foam stability is greatly improved.

Source: Amberlite ion exchange resins are a development of the Resinous Products Div., Rohm & Haas Company, Dept. CP, Washington Square, Philadelphia, Pa. . . . or for more information check CP 5277 on handy form, pages 2 and 3.

Shows construction of hose for handling sand, cement

Sand discharge and placement, cement handling and grout hose are the subject of cut-away illustrations in a 2-page catalog section. Construction is described. Cat. Sec. 4460, issued by The B. F. Goodrich Company, Dept. CP, Akron, O. When inquiring specify CP 5278 on handy form, pages 2 & 3.

DECEMBER, 1949

Accurately made to close tolerances

Uniform rib width

Ample lap widths

No cracks on outside corners

No wrinkles on inside corners

No Wrinkles... No Cracks... No Blowouts!

no place for leaks in THIS heat exchanger gasket

TAKE A CLOSE LOOK at the Goetze heat exchanger gasket shown above. Note the absence of cracks on outside corners . . . of wrinkles on inside corners . . . the uniform width of the ribs . . . the generous overlap of the metal jacket.

Attention to such important details is typical of the kind of care that goes into the forming of these custom-made gaskets. It is the secret of their dependable service—why you can count on them to stay on the job indefinitely without leaks

or blowouts. And it's the reason they pay off in terms of less down-time and in the savings that result when gaskets *don't* have to be replaced at frequent intervals.

You can have Goetze heat exchanger gaskets made in any size or shape. Estimates and recommendations will be furnished promptly on request. Write Johns-Manville, Box 290, New York 16, N. Y.



Johns-Manville Goetze Gaskets

When inquiring check CP 5279 on handy form, pgs. 2-3



INDOIL CHEMICAL COMPANY

910 SOUTH MICHIGAN AVENUE • CHICAGO 80, ILLINOIS

When inquiring check CP 5280 on handy form, pgs. 2-3

NEW SOLUTIONS of processing problems

**Cut weighing costs 56%,
save \$15,000 a year
in labor, materials . . .**

balance has but one pan, two knife edges; weighs in 1/3 time required by usual balance

Problem: At plant of Formica Company, Cincinnati, Ohio, production involves impregnation of such materials as cloth, paper and asbestos with synthetic resins, and laminating them under heat and pressure into sheets, rods and tubes. Percentage of resin added in process is of critical importance.

To provide a close check on this factor, sample weighings are made before impregnating and at intervals throughout process as rolls feed through machines.

If a weighing shows that tolerances have been exceeded, roll is "flagged" at that point, until operators bring process back to standard. Chain balance was previously used for weighing. This was slow and wasted material. With a great increase in production imminent, speeding up of weighing procedure and reducing material waste were even more urgent. A prime requisite of the tests was that they give at least two-place accuracy.

Installing a new chain balance and placing an additional man in the laboratory for each shift offered only a partial answer in view of additional workers involved.

Solution: A "scale" was found that was not only capable of speeding-up tests but assured the necessary accuracy. This is a direct-reading analytical balance. With it an operator can obtain four-place accuracy in a matter of seconds.

Instead of the usual two pans and three knife edges, it has but 1 pan and 2 knife edges. From one end of the



Balance quickly checks amount of impregnated resin

beam are suspended pan and a series of units and fractional weights totaling 200 grams. At other end of the beam is optical scale and an ingeniously combined counterbalance and air damper.

With this scale the beam is under constant load during every weighing. By manipulating four knobs on front of balance, operator removes beam weights equal to that of sample. Total of these weights is automatically recorded on indicator dial in center of faceplate. Remaining three decimal places are prismatically projected from optical scale to viewing screen on indicator dial.

Results: Estimated savings made possible by use of two balances (now installed for nearly a year) will run as high as \$15,000 for labor alone, plus savings in materials through speeding-up of testing process.

Source: Gram-matic balances are available from Fisher Scientific Co., Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. . . or for more information check CP 5281 on handy form, pages 2 and 3.

For protection against Air Damage—

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**MAGNOLIA
AIRCO
NITROGEN
for
oxygen-free
atmospheres**

For deaerating, processing, storing and packaging fats and oils, in the packaging of dehydrated foods, and other processes requiring an inert atmosphere, use Magnolia Airco Nitrogen. It gives positive protection to practically any material susceptible to oxidation and corrosion.

Magnolia Airco is one of the leading producers, purifiers and suppliers of nitrogen in the southwest.

To meet your requirements Magnolia Airco can supply nitrogen in 224 cu. ft. cylinders, or, if your plant is conveniently located and is equipped with an internal pipeline, delivery in bulk may be made in trailers. For further information address our nearest office.



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When inquiring check CP 5282 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

NEW SOLUTIONS of processing problems

Cut caustic consumption 50% by recirculation through scrubber . . .

achieve more complete conversion of caustic used to reduce concentration of H_2S in vented air

Problem: In a plant manufacturing product from which H_2S is evolved, approximately 5000 cfm of air containing approximately 200 ppm of H_2S must be vented. It is necessary to reduce H_2S content of vented air to .05 ppm.

To attain this reduction, plant had been using a packed tower recirculating a caustic solution. However, chemical costs were high, due to low conversion of caustic. Only a 12 hour run could be used before a recharge of fresh caustic was necessary.

Short run between charges and need for constant check on tower packing made this method inefficient.

Solution: A 4-stage, counter-current scrubber utilizing impingement baffle plates was installed. Unit was designed for 300 gallon storage of caustic, which in turn is picked up by means of a pump, circulated over the top plate and returned to base of scrubber by gravity.

This type of scrubber is designed to remove suspended matter such as finely ground materials, dusts, bacteria and fog from gases. Particles are trapped in a liquid (generally water) and scrubber delivers a clean gas, free from entrained moisture. Suspended matter may be subsequently recovered from scrubbing liquid or discharged as waste.

Baffle plates produce a unique, vigorous scrubbing action. Plates utilize directed impingement to separate and trap suspended matter. Arrangement of plates and flow of gas and water are shown in illustration.

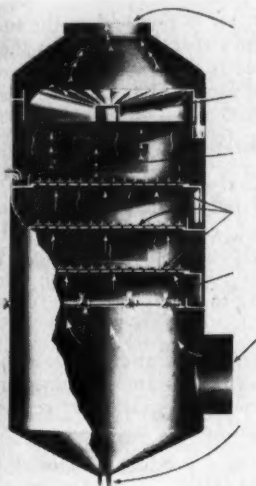
Impingement baffle plate consists of two parts: (1) perforated sheet having from 600 to 3000 holes per sq. ft., and (2) impingement baffles mounted above sheet and arranged so that a baffle is located directly above each perforation.

Plates direct a multiplicity of small gas streams against wetted individual baffle above each gas jet. Intimate contact between gas and liquid results from this scrubbing action and high efficiencies are achieved in eliminating suspended material from gases in absorption processes.

Results: Lower residual H_2S . More complete conversion of caustic. Longer operation between charging of fresh caustic. Chemical costs are cut by 50%.

Source: Scrubbers are built by Peabody Engineering Corp., Dept. CP, 500 Fifth Ave., New York 19, N. Y. . . . or for more information check CP-5283 on handy form, pages 2 and 3.

DECEMBER, 1949



Gas, liquid flow diagram of scrubber



Would you store your dollars in a sieve?

Some quaternary ammonium compounds lose germicidal potency in a matter of days or weeks. No matter how low-priced such materials *appear* to be, formulating with them is like storing your dollars in a sieve . . . the qualities you pay for leak away with the passage of time.

onyx BTC^{*} is the low cost QUATERNARY AMMONIUM COMPOUND with *Guaranteed Shelf Life!*

Repeated tests show that ONYX BTC is one quaternary you can depend upon for maximum germicidal potency, no matter how long you store it. This stability is a sound reason why so many processors specify ONYX BTC . . . why they call it the most economical and useful quaternary on the market today. No other quaternary gives you more value, higher bactericidal effectiveness . . . greater versatility in application. A new technical bulletin explains in detail the many advantages afforded by ONYX BTC. Your copy is free for the asking.

*Registered Trademark for Onyx Alkyl Dimethyl Benzyl Ammonium Chlorides



Please send us a copy of your new booklet entitled, "ONYX BTC".

Firm Name

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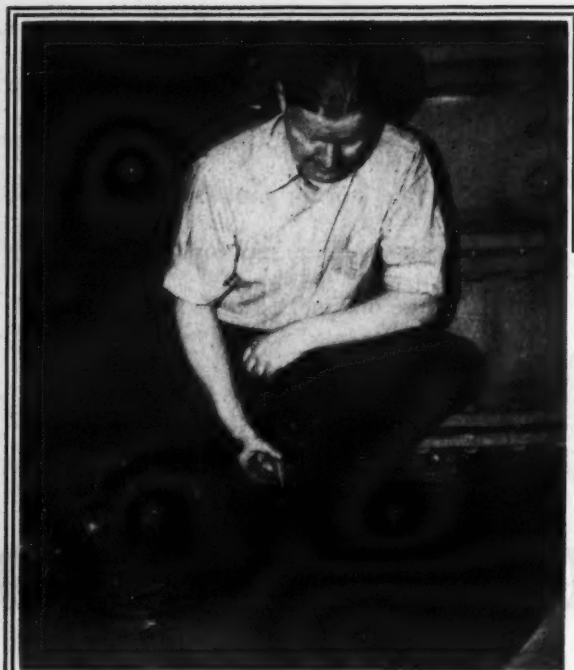
Address

We are also interested in

When inquiring check CP 5284 on handy form, pgs. 2-3

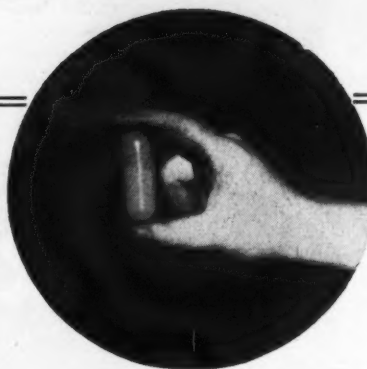
Prevent Foaming in 5000 Gallons of Tar Emulsion with 1 oz. Capsule of Silicone Compound

Utility company eliminates boil-overs in handling by-products of water gas plant



« Antifoam is dropped into still pot through pipe opening »

1 oz. of antifoam prevents boil-over of 5000 gallon tar pot



PROBLEM: Central New York Power Corp., operates water gas plants in connection with coking operations and produces tar as a by-product. In the

corporation's Utica plant, tar is pumped in the form of a 25% water emulsion to a storage tank near the still. As much water as possible is drained from the tank before still is loaded. Tar produced must have less than 1% moisture.

During evaporation operations, boil-overs were frequently encountered.

Solution: When still pot is charged with 5000 gallons of emulsion, a 1 oz. gelatin capsule of antifoam agent is added to pot through a pipe opening installed for the purpose. Antifoam agent is a silicone defoamer that is used effectively in processing of paper, adhesives, varnishes and chemicals.

Results: Boil-overs completely eliminated. Although, like other silicone products, this anti-foaming agent is relatively expensive in itself, its great effectiveness with small amount required justifies the cost.

Source: Antifoam A is a product of Dow Corning Corp., Dept. CP, Midland, Mich. . . or for more information check CP 5285 on handy form, pages 2 and 3.

USES: May be used as a carrier for hydrazine in organic reactions. May be employed directly as a catalyst, reducing agent, additive for improving the keeping qualities of cut flowers, as pesticide and herbicide.

Features: As a carrier for hydrazine, dihydrazine sulphate may be utilized to advantage wherever hydrazine acid sulphate is now used. It contains 60% more hydrazine, is 20 times more soluble in water, requires only $\frac{1}{2}$ as much base to free an equivalent amount of hydrazine, and is less corrosive. Dihydrazine sulphate may also be used wherever hydrazine hydrate is used.

Description: Dihydrazine sulphate is a stable, colorless salt in flake form. Dried salt has melting point range of 107 to 112°C; decomposes with evolution of gas at 130°C. At 50°C, 62.5 gms are soluble in 100 gms of water. A 1% solution has a pH range of 4 to 5 at 25°C. Dihydrazine sulphate is hygroscopic; should be protected from undue exposure to the atmosphere.

In reactions where presence of the sulphate ion is objectionable, it may be removed as the insoluble potassium sulphate by addition of alcoholic potassium hydroxide.

Dihydrazine Sulphate Offers Greater Solubility, Greater Active Content

Has advantages over hydrazine acid sulphate, hydrazine hydrate; used as carrier, and directly as catalyst, reducing agent, pesticide, herbicide

Dihydrazine sulphate can act as the hydrazine carrier in the Curtius Reaction for making isocyanates, amines, symmetrical ureas, and urethanes from esters. Reactions are carried out in 4 steps.

As the hydrazine carrier in the Wolf-Kishner reduction, carbonyl groups are reduced to methylene groups or carbon chains.

Other reactions in which dihydrazine sulphate acts as the hydrazine carrier are: preparation of semicarbazide

and aminoguanidine; reaction with active halides to form substituted hydrazines; reaction with carbonyls to form hydrazones or azines; and the formation of heterocyclic rings.

Two analytical methods for retaining accurate control of hydrazine concentrations in dihydrazine sulphate solutions are recommended. 1) Hydrazine may be titrated directly with standard iodate solution in the presence of conc. HCl (4 normal or above). 2) This method is

CHEMICAL PROCESSING Preview

essentially the same as the former, except that a water soluble dye is added as the internal indicator, thus providing a sharper end-point.

Toxicological and physiological properties of dihydrazine sulphate have not been definitely determined. It should be handled with great care, should never come in contact with the skin. Heated solutions of the salt should be well ventilated.

Source: Mathieson Chemical Corporation, Dept. CP, 60 E. 42nd Street, New York 17, N. Y. . . . or for more information check CP 5286 on handy form, pages 2 & 3.

Acrylic aldehyde now available in commercial quantities . . .

contains aldehyde group, ethylenic linkage which can be reacted individually or simultaneously

Uses: Extremely reactive liquid is valuable in formation of resins and other organics. Derivatives of the aldehyde are being produced so that handling of the toxic, flammable liquid will not be necessary.

Features: Produced for the first time in commercial quantities at commercial prices. Compound contains both an aldehyde group and an ethylenic linkage. Either group can be made to react individually, or both groups can be reacted simultaneously.

Description: Acrylic aldehyde, or acrolein, has sp. gr. of 0.8427 at 20/20°C, boiling point of 52.6°C, flash point below 0°F, and is soluble in water.

The extreme reactivity of the compound indicates usefulness in many syntheses. Typical of reactions possible are: (1) reaction with halogens to form 1,2-dihalo-propionaldehyde; (2) reaction with butadiene to form 1,2,5,6-tetrahydrobenzaldehyde; (3) reaction with cyclopentadiene to form 2,5-endomethylene-1,2,5,6, tetrahydrobenzaldehyde.

Because acrolein tends to polymerize readily on exposure to air and light, and since its vapor pressure at room temperature is quite high, it is difficult to handle. It is a lachrymator with piercing, disagreeable odor and very high level of toxicity; should be handled in proper equipment by experienced operators.

Liquid and vapor are extremely flammable and should be kept away from fire and heat. Ample ventilation must be provided when using the compound; laboratory-type hoods or closed systems should be employed. Concentration of vapor must be kept well below level at which it is irritating to nose and eyes.

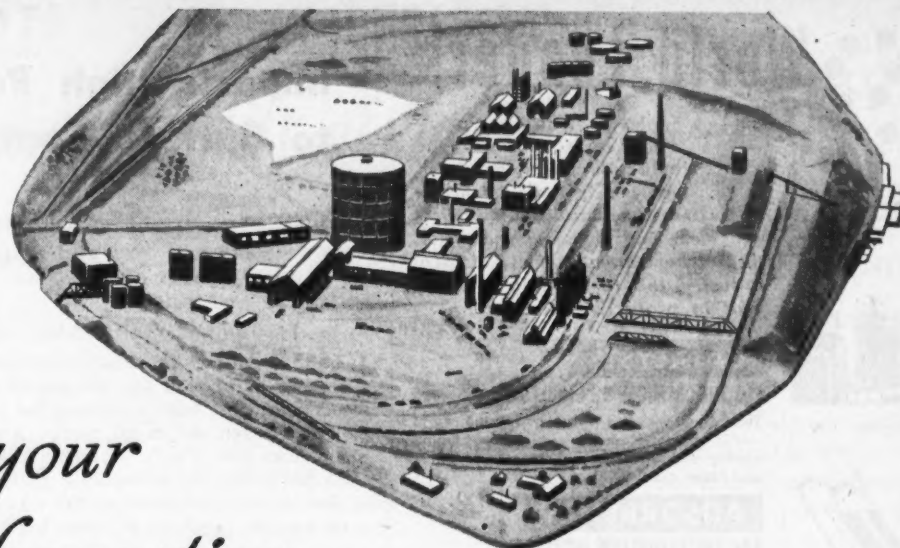
Acrolein is shipped in 1-lb, 5-gal or 55-gal containers. Contains 0.1% hydroquinone as inhibitor when shipped. Unless inhibited, acrolein polymerizes on standing to form white amorphous material insoluble in water, alcohol, acids and alkalis. Presence of hydroquinone generally has no detrimental effect on reactions, and frequently is beneficial in stabilizing unreacted acrolein.

Production of many derivatives has been planned or started, to obviate necessity of handling the difficult acrolein itself. Among these derivatives are: (1) allylidene acetate, an interesting monomer for copolymerization; (2) ethyl beta-ethoxypropionate, an intermediate in synthesis of vitamin B; (3) beta-methylmercaptopropionaldehyde, an intermediate in synthesis of methionine.

Commercial production of beta-ethoxypropionic acid and beta-ethoxypropionaldehyde is also being planned.

Source: Carbide and Carbon Chemicals Corp., Dept. CP, unit of Union Carbide and Carbon Corp., 30 East 42nd St., New York 17, N. Y. . . . or for more information check CP 5287 on handy form, pages 2 and 3.

DECEMBER, 1949



For your Information...

these are the products made by the divisions of

PITTSBURGH COKE & CHEMICAL COMPANY

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Phenol
Hydrochloric Acid—20° and 22°
Picoline—Alpha, Beta and Gamma
Pyridine—Medicinal and Industrial
Sodium Cyanide
Sodium Thiocyanate
Sulphate of Ammonia
Sulphuric Acid—60°, 66° and Oleum
Tar Acid Oil Disinfectants
Tar—Crude and Road
Toluol—Nitration and Commercial
Xylol—10°, 5° and 3°
2,4 Dichlorophenol

EMPIRE CHEMICAL COMPANY

Phthalic Anhydride

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GREEN BAG CEMENT DIVISION

Portland, Portland Waterproofed, Portland Pozzolan,
Green Bag Mortar Cements

PITTSBURGH AGRICULTURAL CHEMICAL COMPANY

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2,4-D Isopropyl Ester
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Parathion—Dry Dust Concentrates
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Gold Recovery Grade
Decolorizing Grade
Water Purification Grade
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For additional information on any of above products, write:

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When inquiring check CP 5288 on handy form, pgs. 2-3



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FOR THE CHEMICAL & PETROLEUM INDUSTRIES

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Economical and efficient Desiccite*, the modern drying agent, prevents corrosion and permits items as diversified as food and metal parts to arrive at the ultimate destination "factory-fresh."



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ADSORBENTS, CATALYSTS AND DESICCANTS

Imparts High Resistance, Drying Qualities to Surface Coatings

Alkyds modified with styrene have good adhesion and toughness; can be easily handled

USES: Among the many applications are manufacture of finishes for household shelf brackets and wooden trinkets; baking enamels for toys; dipping enamels for wooden and metal parts. An aluminum enamel made from one of these styrene-modified alkyds is being used for protecting automobile grilles against corrosion. A low-viscosity solution of the alkyd used with aluminum powder produces brilliant leafing effect.

The modified alkyd is being used as base for metal baking primer used under lacquers and enamels. Primers have excellent sanding qualities, but since these resins are short, higher pigmentation is necessary to provide resistance to humidity.

Other uses are in motor block enamels, and spraying varnish for toy wooden wagons. Use as hammer-finish vehicle has been moderately successful.

Features: Air-dry fast enough to handle in 10-20 minutes, depending upon solvent employed. In some cases, only 3 or 4 minutes are needed. Using only 0.03% cobalt drier, films develop Sward hardness of 10% in one hour.

Baked films cure rapidly and are hard, tough. Hardness readings after baking 15-30 minutes at 300°F are reported to be as good as, or better than those of urea-alkyd blends. Using the shorter of these two resins, it has been shown possible to obtain hard, tough films in 10 minutes at 150°F.

Properly formulated films display the "wetness" or liquid appearance characteristic of varnish films. Gloss retention of enamels is said to be better than that of most alkyd enamel formulations.

Adhesion to metals and primers is excellent. No primer is required for steel, but non-ferrous metals demand special primers. Adhesion of air-dried films improves with age; baked films adhere better when baked at higher temperatures.

Baked films can be immersed in water for a week without appreciable effect. Since these resins are thermoplastic, hot-water test results are not as good as cold-water test results.

Resistance to alkalis is excellent. Films baked on test tubes have been immersed in 5% caustic soda solution for 7 days without failure. Similarly prepared urea-alkyd film failed in 24 hours. Acid resistance is fair to good.

Baked films have shown themselves capable of withstanding gasoline, mineral spirits, alcohols and coal tar hydrocarbons for as long as a week. Film is removed by coal tar solvents and esters, but film re-establishes adhesion, without disintegration, after 2-6 hrs.

Accelerated weathering tests indicate that films weather fully as well as films made from pure alkyds.

Description: Styresols No. 4250 (short) and No. 4400 (longer) are alkyds incorporating the usual gly-

erol phthalate resin and vegetable oil, modified with styrene in same manner as rosin, phenol and similar materials modify other alkyds. The resins are not to be confused with styrenated oils, the films formed by each being quite different.

They can be handled the same as other alkyds in formulating procedures, with certain reservations mentioned below.

Styresols will not tolerate aliphatic solvents, but they will tolerate coal tar thinners such as toluol and xylol. Alcohols are not recommended, but ketones, esters and such ethers as cellosolve and butyl cellosolve are satisfactory. Turpentine is excellent, but like other slow-evaporating or high-boiling solvents, it retards dry and detracts from overall drying properties. Consistent with viscosity requirements, any solvents with kauri-butanol value more than 60 can be used safely.

So far, only cobalt and manganese naphthenates have been found satisfactory as driers with the Styresols.

Resins are not very compatible with other alkyds, oils, varnishes, chlorinated rubber, waxes, ethyl cellulose and nitrocellulose. Urea and melamine resins can be added up to 10% of the resin solids, but the butanol portion of the solvent in such solutions may cause instability, although the urea and melamine resins are miscible with Styresols.

Styrenated oils are the best blending vehicles. So far, it has not been necessary for modification exceeding 5-10% of resin solids in practice. Where modification has been used, it is often possible to preserve partial miscibility and obtain clear films by using some powerful high-boiling solvent.

The resins are no more reactive towards pigments than any other short alkyd. To minimize bodying in mill, and after-bodying in produced enamels, diethylamine is used in grinding procedure. As high as 0.5% diethylamine, based on total formula, is not detrimental to film, but 0.10-0.25% or less is usually sufficient. Such agents as morpholine are effective in less active pigment formulations. While it is usually best to use a stabilizing agent in grind, it may not always be needed in ultimate production formula.

12-15 seconds on No. 4 Ford Cup is best spraying viscosity for Styresol enamels. Solvents used to thin should be relatively fast evaporators to which 5-10% of butyl cellosolve, butyl acetate, hi-flash naphtha or other slow solvent has been added. 1-2% pine oil is also helpful in assisting flow.

Styresols, like lacquers, dry mostly by evaporation. Rate of evaporation of solvent determines how quickly finished parts can be handled. Some oxidation of the alkyd film occurs eventually, but this does not retard handling. Air-dried films are hard, but are more brittle than baked films, and do not have as good adhesion. The brittleness, however, lessens as film ages.

When inquiring check CP 5289 on handy form, pgs. 2-3

Following are viscosities of Styresols when the resin solutions have been reduced to 40% solids with solvents named. Readings in seconds on No. 4 Ford Cup at 77°F:

Solvent	Styresol 4250	Styresol 4400
Xylol	56	46
Mineral Spirits	103	93
Butyl Cellosolve	60	53
Lacquer Thinner	39	38

Source: Reichhold Chemicals, Inc., Dept. CP, 601-707 Woodward Heights Blvd., Detroit 20, Mich. . . . or for more information check CP 5290 on handy form, pages 2 and 3.

Corrosion-resistant coating based on chlorinated rubber . . .

is more resistant to corrosive atmospheres than ordinary oil based paints

Uses: Coating for floors, walls, ceilings, exteriors of storage tanks and structural steel exposed to industrial atmospheres. Designed to be of service where ordinary oil or oleoresinous paints are not satisfactory. For wood, brick, metals, and concrete.

Features: Paint is chemically resistant to moisture, vapors, grease and oils, and to acid and alkali fumes. Has better resistance to corrosive fumes and vapors than ordinary oil base paints. Can be applied over old paint or other surfaces without priming; requires no special surface pretreatment.

Description: "Ucilon 1701" is based on chlorinated rubber; 1 or 2 coats are reported to yield a durable, corrosion resistant finish. Covers up to 500 square feet per gallon, depending on the surface. Full range of colors available.

Source: Development of United Chromium, Incorporated, Dept. CP, 51 East 42nd St., New York 17, N. Y. . . . or for more information check CP 5291 on handy form, pages 2 and 3.

Alkyl amine production expanded . . .

increases tonnage of some compounds already being made, introduces 4 lower amines

Carbide and Carbon Chemical Corporation has enlarged its facilities for production of alkyl amines. Mono-ethyl, diethyl, triethyl and diisopropyl amines are now being made. Larger quantities of mono- and di(n-butyl) amines, mono- and di(2-ethylhexyl) amines and monoisopropyl amine are being produced.

The larger tonnage of lower alkyl amines made available by expansion of production is welcomed at this time because the lower alkyl amines are used for solubilizing the weed killer, 2,4-D. Triethyl and monoisopropyl amines are finding widespread application in this and other agricultural products.

Several of the alkyl amines are raw materials for Carbide's synthesis of other compounds in their long list of nitrogen compounds. Diethylethanolamine, one of these chemicals, will be available in greatly increased quantities for the pharmaceuticals, textile and polish manufacturing industries.

Source: Carbide and Carbon Chemicals Corporation, Unit of Union Carbide and Carbon Corporation, Dept. CP, 30 E. 42nd St., New York 17, N. Y. . . . or for more information check CP 5292 on handy form, pages 2 and 3.

IRON FREE—RAPID SOLUBILITY

Prove High Quality of Hooker Sulfides

Where you are using or considering using Sodium Sulfide or Sodium Sulfhydrate, you will do well to see how the high purity of these Hooker products can make your work easier and more effective.

Hooker Sodium Sulfide has a maximum iron content of 8 ppm and Sodium Sulfhydrate a maximum iron content of only 5 ppm. In developing these iron free sulfides, Hooker has also been able to keep them remarkably free from other impurities.

Rapid and complete solubility of these sulfides, a result of careful manufacture and high purity means that the clean solution can be used without settling or decanting—a time and material saving that is well worth while.

Large users of sodium sulfhydrate can obtain this Hooker product in liquid form in tank car quantities. It is supplied in concentrations of 37% or 45%.

Send for samples and Technical Data Sheets. Please make your request on your company letterhead.

SODIUM SULFIDE Na_2S

Mol. Wt. 78.1
M.P. 100°C

Light buff colored solid in flake form. Rapidly soluble in water; slightly soluble in alcohol; insoluble in ether.

ANALYSIS

Na_2S 60 to 62%
 NaCl 1.5% Max.
Other Na Salts 2.0% Max.
Fe 8 ppm Max.
Cu, Ni, Cr, Mn, Pb . . . 1 ppm Max.
Water of crystallization . . . 36.5 to 34.5%

USES

In unhairing hides and wool pulling; desulfurizing viscose rayon; in manufacture of dyestuffs, chemical intermediates, paper pulp, soap and rubber, as an ingredient of dye liquor for textile dyeing; boiling out linen; ore flotation and metal refining.

SHIPPING CONTAINERS

Steel drums . . 90 and 350 lbs. net

SODIUM SULFHYDRATE NaSH (sodium hydrosulfide)

Mol. Wt. 56.1
M.P. 55°C

Light lemon colored solid in flake form. Completely and rapidly soluble in water, alcohol and ether.

ANALYSIS

NaSH 70 to 72%
 Na_2S 2.5% Max.
 NaCl 0.8% Max.
 Na_2SO_3 and NaHCO_3 . . 0.4% Max.
Fe 5 ppm Max.
Cu, Ni, Cr, Mn, Pb . . . 1 ppm Max.
Water of crystallization . . 28 to 26%

USES

In unhairing hides, in desulfurizing viscose rayon; in preparation of dyestuffs and other organic chemicals such as thioamides, thiourea, thioglycolic acid, thio- and dithio-benzoic acids, sodium thiosulfate.

SHIPPING CONTAINERS

Flake: Lacquer-lined steel drums, 90, 350 lbs. net
Liquid Tank Cars

HOOKER RESEARCH PRESENTS

SULFUR COMPOUNDS

Bulletin No. 9

Looking for a new organic sulfur compound? The answer to your problem may be found in this new Hooker bulletin. It lists typical processes and over 40 different organic sulfur compounds in 9 different classifications. These products are not all being manufactured, but they are all products we know how to make. As they are all typical products, they may suggest other materials of a similar type for which you may be looking.

Hooker does not offer ordinary sulfonations or sulfurized products. We do offer a variety of sulfides, mercaptans, thio acids, thiocyanates and other sulfur derivatives, many of which require our specialized processing ability.

If you have a potential requirement for a new organic sulfur compound, see what we can do for you. Write today on your business letterhead for your copy of Bulletin No. 9, Sulfur Compounds.

HOOKER CHEMICALS

9-1448

From the Salt of the Earth

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When inquiring check CP 5293 on handy form, pgs. 2-3

ATLANTIC

PETROLEUM CHEMICALS

ULTRAWET 60L

This BRAND NEW liquid Ultrawet is crystal-clear even below 20° F

Atlantic Research has added a really amazing detergent to the ULTRAWET line of "tailor-made" surface-active agents. ULTRAWET 60L is a liquid organic alkyl aryl sulfonate; it is 60% active and 40% water. It has superior wetting, high-foaming, and excellent penetrating characteristics. In addition this newly developed ULTRAWET 60L remains *crystal-clear* even below 20 degrees Fahrenheit. These are properties not exhibited by any other commercial detergent for the money.

If you are selling a liquid detergent for household or institutional use, the solubility of ULTRAWET 60L is a real sales advantage. It is outstanding, too, for shampoos and other cosmetic applications. Its *extra* solubility offers much for textile and other industrial wet processes. It is available in drums and tank cars. ULTRAWET 60L is just one of many ULTRAWETS, each one of which is designed for specific applications and processes.



● APPLICATIONS	● ULTRAWETS					
	30E	30DS	35K	60L	DS	K
	Liquid 30 85	Liquid 30 85	Liquid 35 90	Liquid 60 60	Flake 85	Flake 85
EMULSION BREAKING	✓					
LIGHT-DUTY HOUSEHOLD DETERGENTS			✓			
PENETRANT	✓	✓				
INDUSTRIAL DETERGENTS					✓	✓
HEAVY-DUTY HOUSEHOLD DETERGENTS			✓			✓
EMULSIFIER					✓	✓
WETTING AGENT	✓	✓				
CHARGE STOCK FOR SPRAY AND DRUM DRYING			✓			
DRY MIXING WITH ALKALIS					✓	✓
LIQUID HOUSEHOLD DETERGENTS		✓				
COUPLING AND SOLUBILIZING	✓					

For samples, further information and quotations, communicate with

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Hospital Trust Building, Providence 1, R. I.
1112 S. Boulevard Street, Charlotte 3, N. C.
111 W. Washington Street, Chicago 2, Ill.

When inquiring check CP 5294 on handy form, pgs. 2-3

MATERIALS

Great mechanical stability shown by aqueous dispersions of acrylic resins . . .

3 grades deposit continuous, greaseproof films in 1 pass, even at low coating weights

Uses: As coating emulsions, especially designed for use where other aqueous dispersions have been impractical because of mechanical instability.

Features: Coating designated as Rhoplex WN-75 exhibits ability to deposit continuous films at low coating weights, even when dried at room temperature. May be used in emulsion paints for porous surfaces, and in coatings for many other surfaces, particularly where greaseproofness is important.

"Rhoplex WN-80" has stability that is valuable when clear, continuous, almost colorless greaseproof films are desired, as in coatings for paper, cloth, other fibrous surfaces.

Third type of emulsion is known as Rhoplex FRN, which can be used alone or as permanent plasticizer for other less flexible Rhoplex emulsions. Contributes good tear resistance when used as saturant for porous materials. Gives resistance to aging, serves as anchor coat for plasticized top coats.

Description: All three emulsions are non-ionic, acrylic type, supplied as 40% solids. Because they are non-ionic, many pigments and resins may be added by simple stirring without causing coagulation.

WN-75 is not affected by many acids, bases, salts and solvents which coagulate other dispersions; the emulsion exhibits stability under heat and freezing, does not break when rubbed between the hands, on rolls of coating machines, or on passage through 3-roll paint mill with rolls set so close as barely to pass the emulsion. Prolonged tumbling and rigorous beating do not cause significant coagulation.

The emulsion may be thickened rapidly by addition of concentrated water-soluble polymers, thus reducing dilution of the emulsion. Such pigments as chrome yellow, iron oxide, titanium dioxide, ultramarine blue, cadmium red, chrome oxide and many others may be added directly without coagulation.

Air-dried films of WN-75 show excellent adhesion to cotton duck, wood (maple), Kraft liner board, chip liner board, iron, aluminum, slate and Masonite. These films show fair adhesion to, and strip cleanly from, leather, Plexiglas, rubber, cellulose nitrate and copper.

Emulsion WN-80 demonstrates high stability under mechanical pressure, excellent tolerance for variety of inorganic salts. Coatings are flexible, moderately extensible and elastic. They remain clear and colorless even after aging, and are therefore used as binder for clays and colors where resistance to discoloration during aging is necessary.

With WN-80 it is possible to produce continuous, completely greaseproof coatings on 60-lb patent board in 1 pass, at coating weights as low as 1.9 to 2.4 lb./1000 sq. ft. Where partial greaseproofness is desired, good results have been obtained at a coating weight of 0.9 lb./1000 sq. ft.

Like WN-75, WN-80 is unaffected by many acids, bases, salts and solvents. Passage through paint mill rolls and heating for 5 minutes at 200°F will coagulate the resins, but freezing or beating will cause precipitation. Stability with thickeners is similar to that of WN-75. Grade FRN deposits clear, colorless, flexible elastic films

CHEMICAL PROCESSING Preview

MATERIALS

which are slightly tacky. Freezing and whipping coagulates the dispersion, but other mechanical action does not affect it. The dispersion is not affected by addition of concentrated water-soluble and water-dispersible gums.

The emulsion has tolerance for relatively concentrated solutions of inorganic salts, and for many acids and bases. Many solvents coagulate it, but it accepts ethyl acetate and methyl carbitol.

Films of this emulsion do not discolor under even such aggressive aging conditions as exposure to ultraviolet light for 50 hrs at 110°C or exposure to 100°C for 86 hours in circulating air oven.

Films adhere well to slate, asbestos, sheeting, leather, cotton duck, unfinished wood, paper, cellulose nitrate and cellulose acetate sheeting, Masonite, lead, tin, aluminum, copper and glass.

Source: Rohm & Haas Co., Resinous Products Div., Dept. CP, Washington Square, Philadelphia 5, Pa. . . . or for more information check CP 5295 on handy form, pages 2 & 3.

Thin films of vitreous enamel are rendered opaque by titanium dioxide . . .

high-purity grade is free-flowing, does not require pre-mixing or hammer milling

Uses: Designed as an opacifier for vitreous enamels. Suggested for use in the ceramic field.

Features: Free-flowing properties of new grade of titanium dioxide permit satisfactory dry-mixing and handling.

Description: Titanium dioxide in vitreous enamels permits opacity with a thinner film, imparts flexibility without cracking. It also improves acid resistance.

Grade "Ti-Pure" VG has chemical purity equal to pigment grades; particles are large, and material is free-flowing. It will not stick or ball during dry mixing; premixing and hammer milling are eliminated. There is little dusting in handling; its bulk density reduces required warehouse space and charge volume.

Source: Available from E. I. Du Pont de Nemours and Company, Inc., Dept. CP, Wilmington 98, Del. . . . or for more information check CP 5296 on handy form, pages 2 and 3.

Explains synthetic detergents in non-technical manner

Synthetic detergents are featured in 2-color folder designed to acquaint the layman about these products in non-technical language.

Folder defines synthetic detergents. Explains the need in the textile field, cosmetics, insect and weed killers, institutional cleaning.

Discusses 3 general types of synthetic detergents — anionic, cationic, and non-ionic — with the advantages of each. Includes an easy-to-read chart which gives the name, type, family, and uses of 19 surface active agents.

"Synthetic Detergents — Their History and Applications" is issued by Antara Products, General Aniline & Film Corp., Dept. CP, 444 Madison Ave., New York 22, N. Y. When inquiring specify CP 5297 on handy form, pages 2 and 3.

DECEMBER, 1949

if you use OXALIC ACID

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QUANTITY — QUALITY

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Pfizer OXALIC ACID, TECHNICAL is immediately available as a free-flowing, white, granular product, packed in 325 pound drums. Adequate stocks are available to assure you of prompt delivery and reliable service.

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Iron and Potassium Oxalate (Ferric)	Potassium Oxalate Neutral Technical

Write for samples and prices to: Chas. Pfizer & Co., Inc., 630 Flushing Avenue, Brooklyn 6, N. Y.; 425 North Michigan Avenue, Chicago 11, Ill.; 605 Third Street, San Francisco 7, Calif.

PFIZER



Manufacturing Chemists Since 1849

When inquiring check CP 5298 on handy form, pgs. 2-3

GLASS . . .

**Stronger,
More Lustrous,
More Resistant
to Chemical Attack**

BECAUSE OF ADDED ALCOA ALUMINA

These crystal-clear Neutraglas* ampules made by Kimble Glass are so outstanding that Kimble can claim for them "the highest resistance to chemical attack of any known 'workable' glass."

Kimble uses ALCOA Alumina in making Neutraglas for the same reason that manufacturers throughout industry use ALCOA Aluminas and Fluorides. They help make products the *best* of their kind. Spark plugs . . . abrasive wheels . . . refractories . . . rubber . . . tooth paste . . . lumber—are but a few of the hundreds of products which are measurably better because of ALCOA Chemicals.

We've done a lot of research on the advantages of ALCOA Aluminas and Fluorides in many different products and applications. It is probable that we have data already on hand to help solve a problem of yours. Write to: ALUMINUM COMPANY OF AMERICA, CHEMICALS DIVISION, 1465 Gulf Building, Pittsburgh 19, Pennsylvania.

*Trade name of Kimble Glass, Division of Owens-Illinois Glass Co.



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ALUMINUM FLUORIDE • SODIUM FLUORIDE • SODIUM ACID FLUORIDE • FLUOBORIC ACID • CRYOLITE

When inquiring check CP 5299 on handy form, pgs. 2-3

MATERIALS

Protective lining surpasses intended requirements . . .

developed for carbon dioxide and oxygen at 212°F, it withstands acids, caustics, solvents to 550°F

Uses: Lining material for condensate receivers and hot water storage tanks.

Features: Has good adhesion to steel surfaces. Can be dipped, sprayed, or slush-coated under suitable conditions. Dries to a hard, smooth, porcelain-like finish after application.

Description: "Chromasoid" was originally developed for use only on Schaub equipment as a corrosion resistant lining — principally against carbon dioxide and oxygen attack at 212°F. Final testing indicated that the lining offered a degree of protection far beyond that apparently needed. It was found to be resistant to almost all acids, caustics, and solvents — to some at temps as high as 550°F.

Material is a modified furfuryl, alcohol base resin. When used with a suitably formulated primer, it has good adhesion to steel surfaces. Primer is red; top coat can be compounded to dry black. One prime coat and 3 top coats are usually required for a satisfactory lining. Coatings can be air dried or baked for a fast set. Metal must be thoroughly cleaned and scale free before application of primer.

Source: Fred H. Schaub Engineering Co., Inc., Dept. CP, 2110 S. Marshall Blvd., Chicago 23, Ill. . . . or for more information, check CP 5300 on handy form, pages 2 and 3.

Produce silica pigments in commercial quantity for rubber compounders . . .

colored rubber products with good tensile strength, abrasion and tear resistance are now possible

Uses: Pigment for producing all colors of rubber products.

Features: Imparts tensile strength, abrasion and tear resistance to natural and synthetic rubber products, as well as any color desired.

Description: Tough rubber products (both natural and synthetic) formerly obtainable only in black, may now be manufactured in any color with the use of "Hi-Sil".

Pigment is a hydrated silicon dioxide, having particle size of 0.025 micron — 300 million particles are said to fit on the head of a pin. It is very absorptive pigment, with specific gravity of 1.95. The pH can be varied from 2.5 to about 9.5.

When comparing the physical properties of rubbers compounded with this pigment, Silene EF, and EPC Black (all 20-volume loadings), Hi-Sil exhibits less heat build up, more rebound, longer Mooney scorch, and relatively comparable flex crack growth, Shore hardness and tensile strength.

Complete information on this pigment is given in manufacturer's 8-page paper "Compounding of Natural Rubber with a New Fine Particle Silica".

Source: Development of the Columbia Chemical Division of the Pittsburgh Plate Glass Company, Dept. CP, Barberton, O. . . . or for more information check CP 5301 on handy form, pages 2 and 3.

*IF you want to reduce costs...
why don't you try*

PICCOLYTE

THE VERSATILE RESIN

This pale color, low cost, readily soluble, hydrocarbon, thermoplastic, terpene resin is compatible with waxes, oils, bituminous materials, resins and other substances.



To reduce costs and improve your products, use PICCOLYTE!

Send for Sample

PENNSYLVANIA

INDUSTRIAL CHEMICAL CORP. — CLAIRTON, PENNA.

Plants at CLAIRTON, PA., and CHESTER, PA.

DISTRIBUTED BY: Pennsylvania Folk Chemical Co., Pittsburgh 10, Pa., and
Harrick Standard Chemical Co., Akron 5, Ohio

When inquiring check CP 5302 on handy form, pgs. 2-3

Can CARBON DIOXIDE
solve one of your
processing problems?

Each year industry is finding more applications for carbon dioxide. Some of these involve its use as an inert gas in processing paints, lacquers, resins, plastics, drugs and foods—it's the same gas that puts the "life" in soft drinks and is "death" to fires. Used in solid form ("DRY-ICE") carbon dioxide makes an ideal in-transit refrigerant as well as a cooling agent for shrink fitting and other industrial applications.

For the user of carbon dioxide, Pure Carbonic has developed the Carboflex CO₂ Supply System which insures a gas supply in any required quantity.

A handy directory listing the points that make up the nation-wide Pure Carbonic distribution network is available. If you would like a copy, or, if you desire the help of a Technical Sales Service man in the solution of a problem involving the use of carbon dioxide, please write to Dept. CP1859 at the address below.

PURE CARBONIC, INCORPORATED

GENERAL OFFICES: 60 EAST 42ND STREET, NEW YORK 17, N. Y.
Nation-wide Service — Distributing Stations in Principal Cities

When inquiring check CP 5303 on handy form, pgs. 2-3

DECEMBER, 1949

MATERIALS

Corrosives don't attack rubber compound . . .

fabricated parts show resistance to flexing and abrasion

Uses: Molded, extruded and die-cut rubber parts are in forms of seals and stoppers for chemical containers, gaskets and washers for systems handling corrosive acids or alkalis, tubing and hose for corrosive atmospheres or for handling dilute or concentrated chemicals.

Dielectric properties of the rubber make it suitable for electrical equipment of all types.

Features: Resistant to many concentrated and dilute chemicals. These include aniline, acetone, benzene, ethyl chloride and others. Very high resistance to animal fats, vegetable oils, ozone, oxygen, acids, alkalis, steam, extreme weathering, sunlight and dry heat is reported.

Description: Stallite 863 is reported to have outstanding flex and abrasion resistance. Fabricated parts made from this rubber compound can have durometer hardness of 40-80, tensile strength to 2000 psi and elongation to 500%.

Source: Development of The Stalwart Rubber Co., Dept. CP, 340 Northfield Rd., Bedford, Ohio . . . or for more information check CP 5304 on handy form, pages 2 and 3.

Announce availability of 10 organic fluorides . . .

each contains double bond and 1 or more fluorine atoms

Uses: Compounds suggest potential application in polymerization reactions for preparing plastics and polymers containing stable fluorine groups.

Features: Ten compounds offered permit selection of a compound for investigation which contains desired ratio of fluorine to chlorine, hydrogen, or carbon.

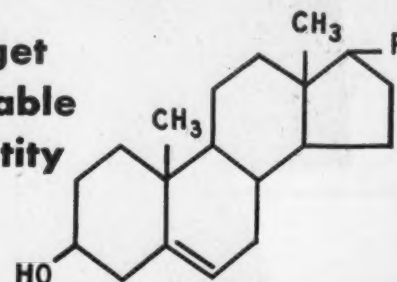
Description: All 10 organic fluorides are liquid at 20°C and relatively pleasant smelling. Each contains double bond, one or more fluorine atoms. Boiling points range from 35.1°C for CHCl:CFCl to 114.4°C for CCl₂:CCl-CHF₂.

Compounds are available in research quantities for investigation as possible fluoroplastic intermediates.

Source: Products of Halogen Chemicals Incorporated, Dept. CP, 616 King St., Columbia 5, S. C. . . or for more information check CP 5305 on handy form, pages 2 and 3.

STEROLS from SOY

Now you can get
purified vegetable
Sterols in quantity
at low cost



THE valuable chemical properties of many animal and vegetable oils come from the family of tetracyclic alcohols. But sterols from animal sources have been costly. Now for the first time, sterols from soybean oils are made available by DPI in tonnage quantity, inexpensive in price.

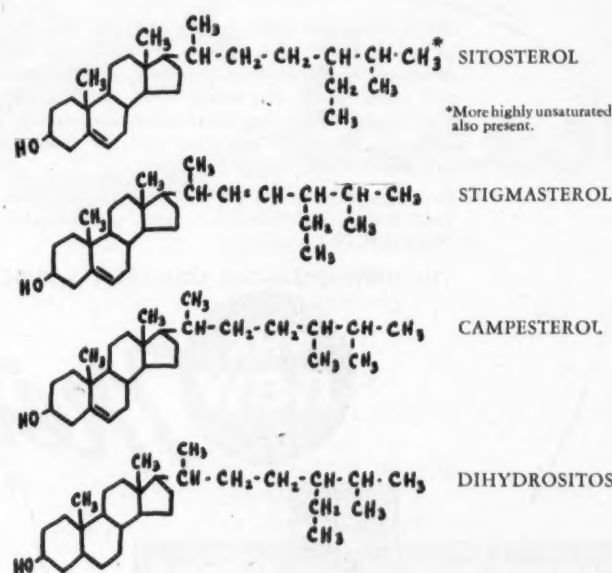
CAN YOU USE STEROLS IN YOUR PROCESS?

Among other uses, these DPI sterols from soybean oil have the ability to stabilize emulsions and to serve as raw material for the synthesis of surface-active agents and pharmaceuticals.

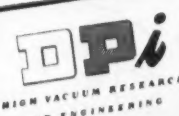
FREE SAMPLES SUPPLIED FOR INVESTIGATION

along with specification sheet and quotations. Write DPI.

Constituents of DPI Mixed Sterols



*More highly unsaturated sitosterols also present.

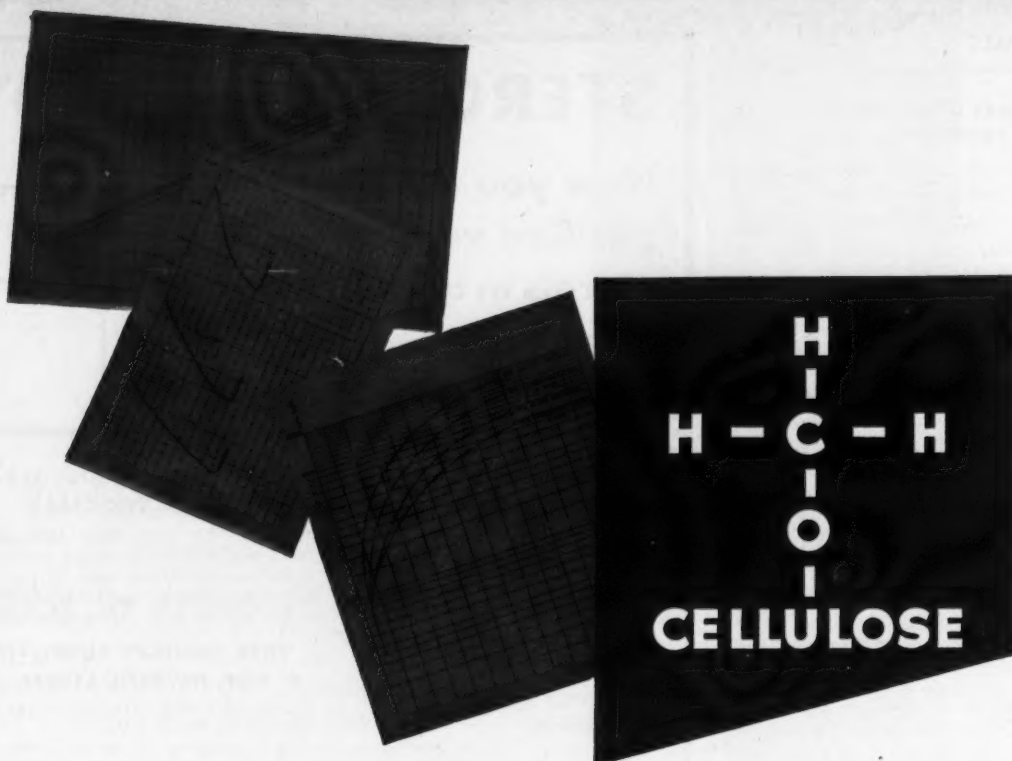


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When inquiring check CP 5306 on handy form, pgs. 2-3



What can Methocel do for you?

Methocel, a cold water-soluble cellulose ether yields neutral solutions in a wide range of viscosities, varied to suit diversified applications. Methocel is outstanding as a thickener, suspending agent and emulsion stabilizer. It also serves as an excellent binder and film former. Countless diversified industries including rubber, paint, leather, paper, ceramics, soap and cosmetics, and the drug industry find Methocel of value.

Investigate the *new* METHOCCEL now available in powdered form to facilitate its use. Send for free, experimental sample of the *new* METHOCCEL, *powdered*.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

THE
new

Methocel

DID YOU GET YOUR SAMPLE?

The Dow Chemical Company
Dept. ME-168-1C
Midland, Michigan

Please send free sample of METHOCCEL, for use in _____
Check viscosity desired: 15, 25, 100, 400, 1500, 4000 cps.

Name and Title _____

Firm _____

Address _____

When inquiring check CP 5307 on handy form, pgs. 2-3



MATERIALS

Molecules can be added across cyano linkage of diallyl cyanamide . . .

possesses excellent solvent properties; is miscible with common organic solvents

Uses: Intermediate for the synthesis of substituted guanidines, biguanidines, normal and iso-ureas and thio-ureas, and for the preparation of secondary amines. May be employed as a solvent for most of the synthetic resins. Miscellaneous suggested applications for the other dialkyl cyanamides include use in hydraulic liquids for transmissions, in lubricating oils, and as plasticizers.

Features: Diallyl cyanamide possesses excellent solvent properties; is miscible with common organic solvents.

Description: Diallyl cyanamide is colorless, mobile liquid when pure, usually darkens upon aging. Has a distinct odor. Melting point is lower than -70°C; density (d_{40}) is 0.9021; viscosity (centipoises at 30°C) is 1.092; and solubility at 50°C is 0.4 g/100 g water, 4.0 g water/100 g. Compound is miscible with common organic solvents; most resins are at least 10% soluble in it.

Important reactions of diallyl cyanamide involve the addition of molecules across the cyano linkage. Typical of such reactants are H-OH and H-OR, and H-SH and H-SR, H-NH₂ and H-NHR, BrMg-R and BrMg-NR₂. Accordingly, compound may be hydrolyzed, in a controlled reaction, to the corresponding substituted urea of amine. This is reported to be one of the best methods for preparing diallylamine; yield is about 88%.

Suitable reaction with ammonia yields the diallyl guanidine. Products of reaction with amine salts are tri- or tetra-substituted guanidines, depending on whether primary or secondary amines are used.

Diallyl cyanamide reacts with free substituted guanidines, as well as their salts, to form substituted bi-guanidines. Reactions with alcohols, hydrogen sulfide, mercaptans and Grignard reagents yield many addition and substitution products.

Reactions of dimethyl, diethyl, and diallyl cyanamides are very similar. Diisopropyl cyanamide, being sterically hindered, undergoes the usual reactions with difficulty if at all.

Diallyl cyanamide must be handled with precautions against skin contact; adequate ventilation for the removal of vapors is necessary.

More information on diallyl cyanamide, as well as on the other dialkyl cyanamides mentioned above, is available in "Cyanamid New Product Bulletin No. 9".

Source: Product of the American Cyanamid Company, Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y. . . . or for more information check CP 5308 on handy form, pages 2 and 3.

Discusses gloss measurement, calibration of meters

Permanent gloss standards made of ceramic materials may be used to calibrate any 60° specular glossmeter in the range from matte to high gloss. The importance of gloss measurement, measuring gloss, gloss standards, glossmeter calibration, and unavoidable nonuniformity in measurement subjects are discussed in 4-page technical report.

Technical Report 1383, issued by the National Bureau of Standards, U. S. Department of Commerce, Washington 25, D. C.

MATERIALS

Intermediate acid acts as difunctional compound . . .

meta-benzenedisulfonic acid is effective electrolyte additive, catalyst, acid curing agent

Uses: Suggested for use as an effective electrolyte additive for the electroplating of nickel, and as an intermediate for the preparation of dyestuffs, pharmaceuticals, leather tanning agents, and photographic chemicals.

Strong acidic properties of the compound indicate value as an acid curing agent or catalyst for phenolic, urea, melamine, and resorcinol resins. Suggested as a catalyst for esterification, condensation, and related acid-catalyzed reactions. Sodium salt of the acid has been recommended for use in a concentrated aqueous solution as a stabilizer for water-insoluble phenols in the preparation of disinfectants, pharmaceuticals, and cosmetics.

Features: Acid serves to give a deposit of superior lustre, ductility, and bonding power with the base metal when employed as an electrolyte additive. Reacts as a difunctional compound in practically all reactions. Difunctional sulfonic acid derivatives, such as disulfonyl chloride, disulfonamide, and disulfonic acid are formed.

Description: As supplied, meta-benzenedisulfonic acid (MBDSA) is an odorless grey crystalline powder, containing approximately 90% meta-benzenedisulfonic acid. It is extremely hygroscopic; absorption of moisture causes the solid to melt, forming highly corrosive liquid. Compound is very soluble in water; soluble in methanol, ethanol, and acetone; and insoluble in hexane, benzene, kerosene, and carbon tetra-chloride.

Sodium, potassium, calcium, barium, zinc, copper, and lead salts are soluble in water. Salts of the acid are readily formed with aromatic and aliphatic amines.

Sulfonic groups of meta-benzenedisulfonic acid may be replaced by hydroxyl, amino, and cyano groups. When the acid is fused with caustic soda, it can be converted to resorcinol. Fusion of an anhydrous alkali metal salt of the acid with sodamide yields some meta-phenylenediamine. Fusion of the acid with potassium cyanide yields isophthalonitrile.

Reaction of the alkali salts of the acid with phosphorus pentachloride yields the acid chloride. Reduction of the acid chloride with tin gives dithioresorcinol; reduction with zinc produces meta-benzenedisulfonic acid. Treatment of the acid chloride with alcoholic ammonia yields meta-benzenedisulfonamide. Action of hypochlorous acid on this disulfonamide yields the dichloro- or the tetra-chloro-disulfonamide.

Nitration, sulfonation, sulfone formation, and thio-sulfonic acid formation of meta-benzenedisulfonic acid are interesting. Nitration of the acid with nitric acid yields both 4 and 5-nitro-meta-benzenedisulfonic acid. Reduction of the nitro group in these acids gives the 4-amino-benzenedisulfonic and the 5-amino-meta-benzenedisulfonic acids.

Reaction of the acid with conc. sulfuric acid produces 1,3,5 benzenetrisulfonic acid. When suitably reacted with benzene, meta-benzenedisulfonic acid yields meta-benzenediphenyldisulfone (sulfone formation). An alkali metal salt of meta-benzenedisulfonic acid, when heated with sulfur, gives the corresponding alkali metal salt of meta-benzenedithiosulfonic acid.

Care should be used in handling this corrosive acid.

Source: Product of the Koppers Company, Inc., Chemical Division, Dept. CP, Pittsburgh 19, Pa. . . or for more information check CP 5309 on handy form, pages 2 and 3.

DECEMBER, 1949



FORMALDEHYDE
PARAFORMALDEHYDE
ACETIC ACID
ACETALDEHYDE
ACETONE
METHANOL
n-PROPANOL
PROPIONALDEHYDE
METHYLAL
PROPYLENE GLYCOL
ISOBUTANOL
TRICRESYL PHOSPHATE
INTERMEDIATES
SPECIAL ORGANIC COMPOUNDS

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CELANESE CORPORATION OF AMERICA, CHEMICAL DIVISION, DEPT. 55-L

180 Madison Avenue, New York 16, N. Y.

NATIONAL DISTRIBUTION THROUGH STOCKS IN MAJOR CITIES
DISTRICT OFFICES: BOSTON CHICAGO DETROIT SAN FRANCISCO • PLANTS: BISHOP, TEXAS NEWARK, N. J.

When inquiring check CP 5310 on handy form, pgs. 2-3

Everyone has problems



If yours happens to be chrome dyeing... Investigate VICTOR DIAMMONIUM PHOSPHATE

Victor diammonium phosphate is a unique and valuable chrome-dyeing assistant... one which is rapidly increasing in importance and popularity with dye-men. It is a powerful buffer which prevents wide fluctuations in pH and promotes unusual levelness and easily reproduced dyeings. Due to the iron-repressing properties inherent in phosphates, chrome colors become brighter. The use of diammonium phosphate saves considerable time and additional processing, since it helps eliminate the need for corrective redyeings. If you would like experimental samples of Victor diammonium phosphate, or a copy of our recent Technical Service Bulletin, "Victor Diammonium Phosphate in Chrome Dyeing," write us or fill in and return the handy coupon.

VICTOR CHEMICAL WORKS • 141 West Jackson Boulevard, Chicago 4, Illinois

Investigate Now!

**MAIL THIS
COUPON TODAY!**

Victor Chemical Works
141 West Jackson Blvd., Chicago 4, Illinois

Gentlemen:

Please Check

☐ Send a copy of Technical Service Bulletin, "Victor Diammonium Phosphate in Chrome Dyeing."

☐ Sample of Victor Diammonium Phosphate

Name _____ Title _____

Company _____

Street _____

City _____ Zone _____ State _____

When inquiring check CP 5311 on handy form, pgs. 2-3

MATERIALS

**Liquid detergent remains
crystal clear at 20°F...**

has good wetting and foaming properties

Uses: Suggests applications in cosmetic formulations, textile processes, emulsion polymerizations ("cold" process rubber), and insecticidal formulations. May be used as a dishwashing detergent.

Features: Liquid detergent is soluble at low temps, remains crystal clear below 20°F. Has good wetting and foaming properties.

Description: "Ultrawet 60L" is an amber-colored liquid composed of 60% organic alkyl aryl sulfonate, 40% water. It is available in tank cars, tank trucks, and specially-lined 55-gal drums.

Source: Product of The Atlantic Refining Company, Dept. CP, 260 S. Broad St., Philadelphia 1, Pa. ... or for more information check CP 5312 on handy form, pages 2 and 3.

**Maleic anhydride
briquettes for
oils, resins...**

moisture-pick-up is reduced by using small exposed surface

Uses: For use in pharmaceuticals, plastics, surface coatings, and wetting agents. For the manufacture of modified alkyds, hard resins, and non-yellowing drying oils.

Features: Designed for ease and safety in handling, briquettes are uniform and free from dust and fines.

Description: Molded briquette-form of maleic anhydride is offered to best suit the need of users. Moisture pick-up and subsequent hydrolysis are held to a minimum by the small exposed surface per unit weight.

Source: Produced commercially by the Monsanto Chemical Company, Dept. CP, St. Louis 4, Mo. ... or for more information check CP 5313 on handy form, pages 2 and 3.

**Cleaner does not harm
polystyrene...**

is non-toxic and quick-acting

Uses: Liquid cleaner removes unwanted lacquer, grease stains, mold lubricants, and foreign matter from polystyrene surfaces.

Features: Does not mar or craze the polystyrene itself. Is non-toxic, quick-acting.

Description: "Poly-Kleen" was

When inquiring check CP 5314 on handy form, pgs. 2-3

ARCOS LOW HYDROGEN ELECTRODES

**FOR WELDING HIGH STRENGTH
LOW ALLOY STEELS**

ARCOS quality-controlled low hydrogen electrodes • Require no preheat on many jobs. • Have high impact values. • Give a complete range of tensile properties with high ductility.

	Yield Strength, psi	Tensile Strength, psi	Elongation in 2"	Reduction in area
Manganend 1M	70-85,000	90-100,000	20-30%	40-70%
Manganend 2M	85-105,000	100-125,000	10-20	15-20
Nickend 1	82-89,000	70-80,000	25-30	50-60
Nickend 2	65-75,000	80-90,000	20-30	45-60

"PEACE OF
MIND"
PACKED
IN EVERY
BOX.

Send for ARCOS Bulletin 1249 containing more specific information on the use of ARCOS LOW HYDROGEN ELECTRODES.



When inquiring check CP 5315 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

STABILIZERS for VINYL PLASTICS

ADVANCE

The Pioneer and the Pacemaker!

**Producing
HEAT STABILIZERS
LIGHT STABILIZERS
For all Grades
POLYVINYL CHLORIDE
PLASTICS**

Write for our new bulletin



**Advance Solvents &
Chemical Corp.**

245 Fifth Ave. • New York 16, N. Y.

MATERIALS

formulated to answer need for quick-acting cleaner that would not craze or mar polystyrene. Cleaner is reported to be far more effective than soap and water cleaning methods.

Source: Product of the Schwartz Chemical Co., Inc., Dept. CP, 326 W. 70th St., New York 23, N. Y. . . . or for more information check CP 5318 on handy form, pages 2 and 3.

Welds galvanized surfaces . . .

coat not harmed by welding rod for single carbon arc

Uses: Welding of steel, bronze, copper and galvanized surfaces.

Features: Particularly important in welding galvanized surfaces is the facts that parts require no preheating, that welding alloy has high corrosion-resistance and that there is no danger of destroying coating while welding.

The 3/32" size is successfully used on 20 to 10-gauge metal.

Description: EutecRod 189 may be used with or without flux, is particularly adapted to single-carbon-arc DC welding, but can be used with oxyacetylene.

Weld has close color match to most red and phosphor bronzes. Although little or no preheating is required on thin parts, heavy bronze castings should be preheated to about 700° F. Bonds at 1550° F and has tensile strength of 51,000 psi.

Available in 3/32, 1/8, 3/16 and 1/4" sizes.

Source: Product of Eutectic Welding Alloys Corporation, Dept. CP, 40 Worth St., New York 13, N. Y. . . . or for more information check CP 5319 on handy form, pages 2 and 3.

Data on tricresyl phosphates

Physical and chemical data and specifications of two tricresyl phosphates are outlined in data sheet. Both are general plasticizers for vinyl resins, cellulosic and resinous plastics, and coating materials. Flame resistance and toughness are exhibited when the compounds are incorporated in coatings and films.

Toxicology and related subjects are covered. Tricresyl phosphate-base hydraulic fluid is announced. Bul. S-07-2, issued by the Celanese Corporation of America, Dept. CP, 180 Madison Ave., New York 16, N. Y. When inquiring specify CP 5320 on handy form, pages 2 and 3.

Dry-Flo

A NEW STARCH DISCOVERY

DRY-FLO powder is a derivative of ungelatinized granule corn starch. Each granule is anchored to a water-repelling film of hydrocarbon radicals.

DRY-FLO powder flows like a liquid through a separatory funnel. It has a soft, silky texture. Its extreme fluidity or mobility permits it to be pumped or sprayed like a liquid or to be easily dispersed to an unusually fine and penetrating dust.

DRY-FLO powder floats. It is not wetted by water. It cannot be gelatinized by heating in water. However, if **DRY-FLO** is first moistened with alcohol or another water-miscible solvent, it can be gelatinized by heating in water. It will give viscous stable pastes from which films with decided water-repellent properties can be obtained.

DRY-FLO powder is easily suspended in organic solvents, oils, lacquers, etc. It is hydrophobic. It does not clump due to the absorption of moisture—as can be seen by shaking **DRY-FLO** in a mixture of water and an immiscible solvent, such as naphtha, etc. **DRY-FLO** is suspended in the solvent. And even though it settles to the surface of the water it continues to be easily resuspended in the solvent, as illustrated.

National

STARCH PRODUCTS

NATIONAL STARCH PRODUCTS
270 Madison Avenue, New York 16, N. Y.

WE'D LIKE TO TEST DRY-FLO in our product development laboratories. Please send
☐ Technical Data ☐ Test Sample ☐ Technical Assistance. Please have a
National representative call on (date) _____

Mr. _____
Company _____
Address _____
City _____
Zone _____ State _____

When inquiring check CP 5321 on handy form, pgs. 2-3

**No More Frozen or Galled STUDS
(even at 1800 F:!) Try this Amazing
Money Saver.**

FREE Test Sample
of the NEW FEL-PRO

**CUT costly stud breakage,
heater dismantling time,
pitting of metal surfaces!**

We'd like to send you a free sample of the new Fel-Pro C-5 "Hi-Temp" Thread Compound to try on your toughest thread compound problems, including alloy and stainless steels. Then you can see the amazing, money-saving results being obtained by the nation's largest refineries, utilities and process industries. Fel-Pro's exclusive Colloidal-Copper formula keeps metal parts separated, regardless of temperatures. Its neutral action solves the alloy and stainless steel pitting problems. One utility company reports that heater dismantling time has been cut from two days to four hours, by the use of Fel-Pro C-5 "Hi-Temp". Why not see what "Hi-Temp" can do for you . . . get your free sample and complete data sheet—write today!

FEL PRODUCTS MFG. CO.
1315 Carroll Avenue, Chicago 7, Illinois

**C-5
"HI-TEMP"
THREAD
COMPOUND**

Eliminates Pitting of Stainless and Alloy Steels at all Temperatures!



When inquiring check CP 5317 on handy form, pgs. 2-3


DECEMBER, 1949




To Meet Your Needs...

Octylene Glycol has been added to our glycol family. Due to its low water-solubility, octylene glycol is useful as an intermediate for plasticizers and alkyd resins. Its low hygroscopicity and volatility combined with its hydrocarbon solubility make it valuable as a coupling and blending agent for metal cutting, leather, and textile oils.

CARBIDE and CARBON CHEMICALS CORPORATION

Unit of Union Carbide and Carbon Corporation
30 East 42nd Street  New York 17, N. Y.

When inquiring check CP 5322 on handy form, pgs. 2-3



STABELAN

The BETTER STABILIZER for VINYLs against heat and ultra-violet Breakdown

TROPIC-TESTED under the hot sunshine of Southern Florida, STABELAN has proved its ability to extend aging 2 to 3 times over ordinary stabilizers for P.V.C. and Resin copolymers. Two types assure a BETTER stabilizer for resistance to sunlight, ultra-violet and high temperature processing.

WRITE for Bulletin giving complete data on STABELAN types and uses.

HARWICK STANDARD CHEMICAL CO.

AKRON 8, OHIO

BRANCHES: BOSTON, TRENTON, CHICAGO, LOS ANGELES

When inquiring check CP 5323 on handy form, pgs. 2-3

MATERIALS

Develop better gelling characteristics in greases...

aluminum stearate stabilizes greases, reduces bleeding

Uses: To develop good gelling characteristics in greases.

Features: Greases containing this compound are uniform, regardless of plant temperature. Offers high yield with any type of base oil.

Description: Greases containing "No. 22-G Grade" aluminum stearate are stable; show relatively less bleeding in storage. Working of 100,000 strokes does not change penetration values from those obtained after 5,000 strokes.

Source: Development of the Witco Chemical Company, Dept. CP, 295 Madison Ave., New York 17, N. Y. . . . or for more information check CP 5324 on handy form, pages 2 and 3.

Develop tertiary amine for emulsion work...

improves water-spot resistance of wax films

Uses: May be employed as an intermediate in making oil-in-water emulsions, for example: self-polishing floor waxes, emulsion paints, various polishes, etc.

Features: Forms an azeotrope with water, improving water-spot resistance of wax films.

Description: This tertiary amine (a technical diethylaminoethanol) has been developed for emulsion work. It may be used as a replacement for higher priced emulsifier intermediates with no quality reduction. Can be used with lower cost emulsifiers to improve quality.

Source: Product of Sharples Chemicals Inc., Dept. CP, 123 S. Broad St., Philadelphia 9, Pa. . . . or for more information check CP 5325 on handy form, pages 2 and 3.

Protect gas-fired units from explosion

Safeguard for protecting gas-fired heating equipment from explosions during ignition, operation, and shut-off is described in bulletin.

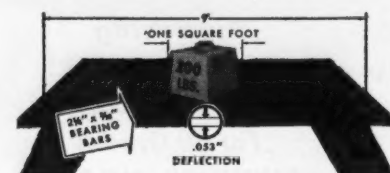
Electronic "Pyrotrol" is applicable to ovens, furnaces, kilns, boilers, dryers, kettles, etc.

Bul. W1816, issued by The Bristol Company, Dept. CP, Waterbury 91, Conn. When inquiring specify CP 5326 on handy form, pages 2 and 3.

For **STRENGTH** specify

TRI-LOK

RECTANGULAR
OPEN STEEL FLOORING



The locked-in strength of Tri-Lok enables it to stand up under heavy loads—even on long spans. No rivets, bolts, or welds are used in the construction of Tri-Lok; this feature eliminates the possibility of loose joints.

Tri-Lok is also available in Diagonal, or Super-Safety U-type Flooring, and in Stair Treads of all types. Write for Bulletin KO 1140.

DRAVO CORPORATION

National Distributor for the
Tri-Lok Company

Dravo Building • Pittsburgh 22, Pa.
Sales Representatives in Principal Cities



When inquiring check CP 5327 on handy form, pgs. 2-3



COVER PIPES TANKS, WALLS

INDUSTRIAL NoDrip

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless, protective coating, stops condensation drip!



NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5, and 55 gal drums, ready for use.

TRY NoDRIP

Apply NoDrip to a small area, compare the results with uncovered portions.

Send for free NoDrip Handbook
J. W. MONTELL CO., 532 Birch St., Kenilworth, N.J.

When inquiring check CP 5328 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

MATERIALS

Emulsifier for insecticides is effective in low concentrations . . .

produces either stable or quick-breaking emulsions

Uses: Cationic emulsifier for chlordane, other insecticides.

Features: Is effectively used in lower concentrations than other commonly used emulsifiers. Acts as "surface oiling" agent, bonding oil phase to surfaces contacted by the emulsion, besides usual function of dispersing oil in water or water in oil.

Description: Oil-soluble quaternary ammonium compound is reported to have excellent surface active properties.

Either stable or quick-breaking emulsions can be produced.

Source: Product of Armour and Company, Dept. CP, 1355 W. 31st St., Chicago 9, Ill. . . . or for more information check CP 5329 on handy form, pages 2 and 3.

Insulate large pipe from temps to 800°F . . .

insulation resists temp extremes

Uses: For insulating steam and other pipes in all standard sizes up to 30" diam.

Features: Insulation withstands temperatures up to 800°F; has low thermal conductivity, is light weight, moisture resistant, and sanitary. Cuts easily; snugs pipe, std. couplings.

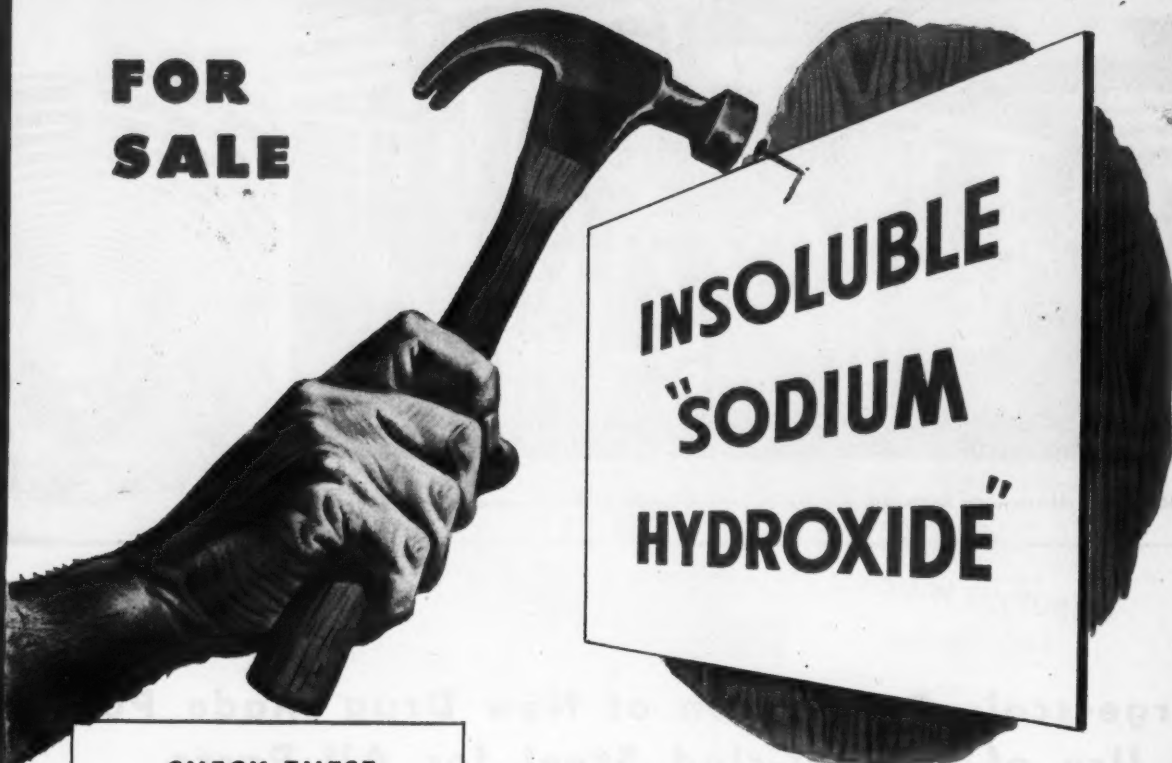
Description: "Fiberglas PF Pipe Insulation, Type 80" is made of glass fibers bonded with an organic thermo-setting binder, and molded in cylindrical form. Standard thicknesses increase in proportion to pipe sizes.

Insulation is made in 3' lengths. For pipe sizes 12" and smaller, two hemicylinders are furnished; for sizes larger than 12", three or four segments are employed. Type 80 is available with a 4-ounce canvas cover. Can also be supplied with a heavier canvas cover. A 35-pound roofing-felt jacket in place of canvas is available for use in locations subject to occasional wetting.

Source: Product of the Owens-Corning Fiberglas Corporation, Dept. CP, Toledo 1, O. . . . or for more information check CP 5330 on handy form, pages 2 and 3.

For more information on product advertised at right, specify CP 5331 . . . see information request blank between pages 2-3.

FOR SALE



CHECK THESE ADVANTAGES

AMBERLITE IRA-400 is a synthetic resin anion exchanger which shows an extraordinarily rapid rate of exchange.

It is so strongly basic that it will remove phenol, carbon dioxide, hydrogen sulfide, silica, phosphates, cyanides, borates, and other weak anions from acid, neutral, and even mildly alkaline solutions.

AMBERLITE IRA-400 promotes aldol condensations, the synthesis of diacetone alcohol, and other organic reactions.

AMBERLITE IRA-400, mixed intimately with a strongly acidic resin, AMBERLITE IR-120, produces an ion exchange system capable of producing water whose ionized solids content is less than one-tenth of one part per million.

FOR SALE

. . . an efficient way of splitting neutral salts

. . . a means of removing the anions of weak acids from solution, over a wide pH range

. . . a strongly basic catalyst which eliminates the necessity of removing contaminating salts that result from the neutralization of ordinary catalysts

. . . the quickest, surest, most economical way to complete deionization of water supplies

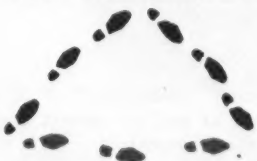
. . . a new kind of "sodium hydroxide"—a "caustic" which is insoluble except for its hydroxyl ions

FOR SALE FROM FULL PLANT-SCALE PRODUCTION

AMBERLITE IRA-400, new, strongly basic anion exchange resin. Check the column at the left. Then write to Dept. CP-8 today, for information that may improve your process and your product—tomorrow.

AMBERLITE is a trade-mark, Reg. U. S. Pat. Off. and in principal foreign countries.

SAVE PROCESS STEPS



WITH THE AMBERLITES

CHEMICALS

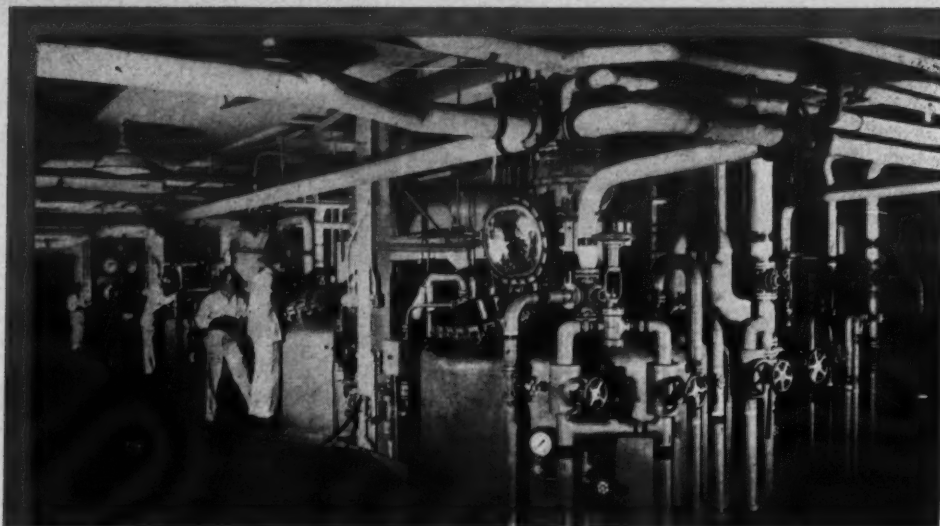
FOR INDUSTRY

ROHM & HAAS COMPANY

THE RESINOUS PRODUCTS DIVISION

Washington Square Philadelphia 5, Pa.

The Resinous Products Division was formerly The Resinous Products & Chemical Company



5000-gallon chloromycetin fermenters in operation, with fermenter in foreground open for cleaning



Photo taken during assembly of fermentation tank shows arrangement of agitator blades, coils, baffles and air inlets



Acid-resistant metal does not inhibit formation of the antibiotic as do iron, copper, tin and zinc

Large-scale Production of New Drug Made Possible by Use of Inconel-clad Steel for All Parts

CERTAIN metallic elements such as iron, copper, tin and zinc inhibited the production of Chloromycetin, new drug for the treatment of typhoid, typhus, undulant fever and certain infections of the urinary and intestinal tract. Large-scale production has been attained largely through the use of Inconel-clad steel throughout the vessels used in fermenting and collecting the drug.

Seven 5000-gallon fermentation tanks and 3000-gallon

acid adjustment tanks were fabricated by National Annealing Box Co. The units themselves were formed from Inconel-clad steel, as were coils, agitator blades, baffles, shafts, nuts, bolts, studs, supports, and all other surfaces contacting the drug.

Drug is actually yielded in the 5000-gal fermenters, and collected in the 3000-gal acid-adjustment tanks. The 5000-gal tanks are 17' deep, 7½' in diameter. As illus-

trated, agitator blades are fixed to ring on shaft extending down the tank. Sparger rings and fillings are located at tank bottoms to supply sterile air. Heating coils which are visible in photograph have diameter of 3". Three baffles are visible, attached to coils.

Final product is almost pure white, crystalline material which has sharp melting point. It is insoluble in water. For oral use it is compressed into tablets or filled into capsules.

Source: Fermenters and acid-adjustment tanks were assembled at National Annealing Box Company plant, Dept. CP, Washington, Pa. . . or for more information check CP 5332 on handy form, pages 2 and 3.

Test 32 Dye Samples Simultaneously in Custom-built Stainless Cabinet

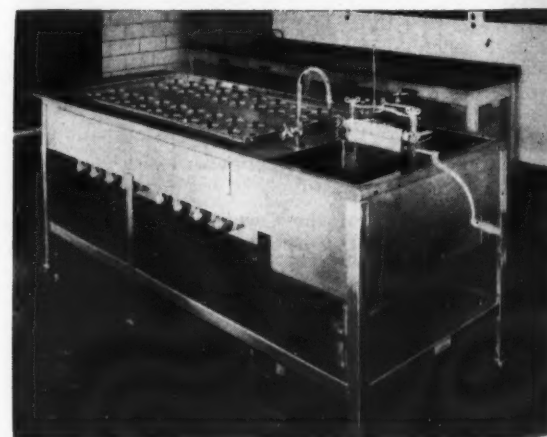
Eight switches control 32 electrical immersion units for holding dyes at working temperatures

ILLUSTRATED dye cabinet permits testing up to 32 dye samples simultaneously, at temperatures to which they are subjected when in use on textiles. Electrical immersion units are employed to hold samples at desired temperature level.

This corrosion-resistant dye cabinet was custom-built

entirely of stainless steel, measures 7' x 3' x 35". Double-compartment sink at end of cabinet was made for the convenience of the laboratory.

Source: The John Van Range Co., Dept. CP, Cincinnati, Ohio. . . or for more information check CP 5333 on handy form, pages 2 and 3.



All-stainless dye-testing cabinet was custom-built to requirements of laboratory

CHEMICAL PROCESSING Preview

Addition of Magnesium Renders Cast Iron Ductile

Metal combines processing advantages of cast iron with toughness, strength, ductility of steel

DUCTILE cast iron, with strength several times that of ordinary cast iron and which can be bent and twisted without breaking, is now being produced in over 40 plants.

New metal which combines processing advantages of cast iron with product advantages of steel is a result of years of research in the Bayonne, N. J., laboratories of the International Nickel Co.

The metal features outstanding strength, ductility and resistance to shock, as well as the fluidity, castability and machinability of ordinary cast iron. Essential features of the inventions, assigned Patent Nos. 2,485,760 and 2,485,761, are the introduction into and retention by the molten iron of a small amount of magnesium.

Presence of this critical amount of magnesium in the iron produces a new graphite structure. Graphite particles are spheroids or compacted particles rather than the usual weakening flakes.

Under stress, the ductile cast iron behaves like steel, having proportionality of stress to strain up to high loads with modulus of elasticity of about 25,000,000 psi. Yield strength is high.

Licensed companies are now producing many castings of this new metal. Castings requiring as much as 25 tons of ductile cast iron have been made. (The International Nickel Co., Inc., 67 Wall St., New York 5, N.Y.)

Insulate pipe supports, reduce heat losses . . .

ability to bear weight of pipe met by 85% magnesia which has loading capacity of 10 psi

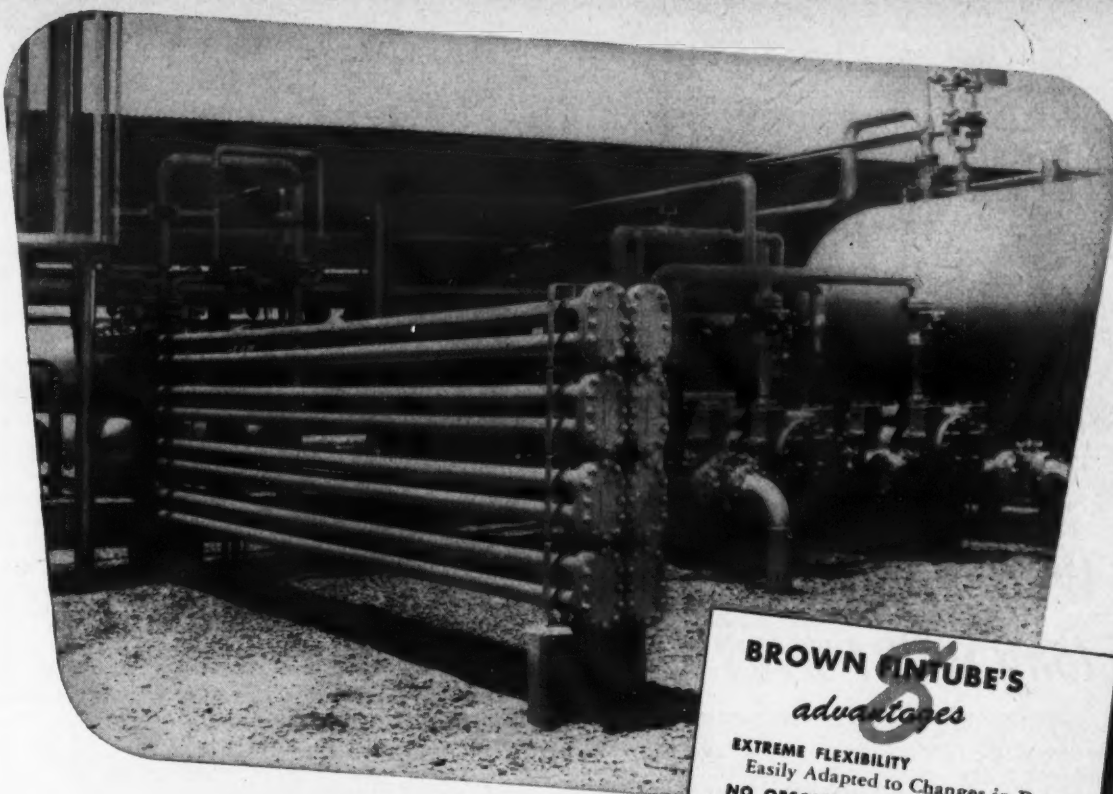
Insulated supports will prevent excessive heat losses due to metal-to-metal contact between hot pipe surfaces and structural supports. In this type of installation, the entire length of piping is insulated in usual manner and then supported by hangers or by channel irons.

Where piping is to be supported by hangers, a No. 10 gauge steel plate — its length proportioned to the load to be carried — is rolled into a band to fit the insulated pipe and provided with a flange assembly. Saddle plate 3/8" thick is then tack-welded around the lower half of the flanged band to assist in carrying the direct load and in spreading it over wide area. Unit is then bolted in place around the insulated pipe, filler bar is fitted over upper half of the flanged band, and the usual hanger strap is fastened around the entire assembly.

Where pipe line is to be supported by channel irons, a 16-gauge sheet metal band, 18" long and flanged for assembly, is bolted around the insulated pipe at each point of support.

Since pipe rests on insulation at the supports, the insulating material used must be able to bear the weight of the pipe. On the basis of tests conducted at University of Illinois, loading capacity of 10 lbs per sq in., or 100 lbs per running inch of line, has been established for 85% Magnesia.

(Method developed by Sargent & Lundy, Engineers, from test work done at University of Illinois and reported by Magnesia Insulation Mfrs. Assn., Washington 4, D. C.)



easy maintenance

Brown Fintube Design Simplifies Inspection and Maintenance

● Brown Fintube Sectional Hairpin Heat Exchangers reduce maintenance three ways:—

1st. BY MINIMIZING COKING. The much increased surface area permits efficient operation at low "skin" temperatures, minimizing coking and building up on the tubes.

2nd. AVOIDING BACK EDDIES. The controlled flow through the longitudinal passages keeps all the material in continuous motion, avoiding baffles, back eddies, and stagnant areas that cause fouling.

3rd. EASY TUBE REPLACEMENT. A fintube hairpin can be taken out of the shell, and a

clean hairpin substituted, by only 2 men, in less than 10 minutes, using only ordinary tools and *no special rigging*.

For the utmost in efficiency and economy, use Brown's proven, welded fintube heat exchangers throughout your plant. Estimates and quotations furnished promptly. Write for *Bulletin No. 481*.

BROWN FINTUBE'S advantages

- EXTREME FLEXIBILITY**
Easily Adapted to Changes in Duty
- NO OBSOLESCENCE**
Avoiding Waste and Expense
- FLANGED HEAD END ASSEMBLY**
Eliminating Ground Joint Seals
- EASY MAINTENANCE**
Using Only Common Tools
- CONTINUOUS OPERATION**
No Shut-Downs For Cleaning
- REDUCED STORES REQUIREMENT**
Minimizing Investment and Handling
- QUICK DELIVERY**
Only a Few Hours in Emergency
- INCREASED CORROSION ALLOWANCE**
Longer Tube Life

THE BROWN FINTUBE CO.
ELYRIA, OHIO

**SECTIONAL
HAIRPIN
HEAT EXCHANGERS**

When inquiring check CP 5334 on handy form, pgs. 2-3



Well, Doc, how long will I live?

The service life of your stainless steel processing equipment is determined by your fabricator. In the professional skill of his mechanics, welders and craftsmen lies the answer to the useful life of that equipment.

For stainless fabrication requires a specialist — with manpower trained, experienced and equipped for that work. A general practitioner might miss up on something that would impair the strength or corrosion resistance of stainless steel. The special technique required for sound welds — the right degree of heat in welding a seam, the proper finish for your application — round corner construction to allow removal of corrosive materials — these often determine how long your equipment will "live" in service.

Years of working with stainless steel have shown us that many hidden weaknesses in the finished vessel can be avoided by proper methods of fabrication. For your next stainless steel vessel, consult with us.

S. BLICKMAN, INC.
712 GREGORY AVENUE
WEEHAWKEN, NEW JERSEY

S. BLICKMAN, INC.
Guards Alloys in Fabrication

SEND FOR THIS VALUABLE BOOK
A request on your letter, head will bring you a guide, "What to Look for When You Specify Stainless Steel for Your Processing Equipment."

CORROSION RESISTANT PROCESSING EQUIPMENT

TANKS • KETTLES • TUBES • HEAT EXCHANGERS • AGITATORS • MIXERS • TOWERS • PIPING

When inquiring check CP 5335 on handy form, pgs. 2-3

Tubing's Pressure, Temperature Resistance Aid Synthetic Fuel Process

Withstands 10300 psi and 1000°F in hydrogenation and gas syntheses at U. S. Bureau of Mines plants

TUBING which will stand the unusual pressure of 10,300 psi at 1000°F was recently announced by the Babcock & Wilcox Tube Company. It was made for the coal-to-oil demonstration plants recently opened by the U. S. Bureau of Mines of Louisiana, Mo.

These two plants will employ two different processes for the conversion of coal and lignite into a full range of high-quality synthetic fuels. These are known as direct hydrogenation and gas syntheses. Plants will serve as proving ground for American coals, equipment and processing methods for what is expected to become a new synthetic fuel industry.

Phases of the coal-to-oil process are first, one in which the coal is liquified, and second, one in which the liquified coal is converted into gasoline.

The complete process involves high temperatures and unusually high operating pressures which call for alloy tubing resistant to these factors as well as corrosion. Tubing used included sizes from 1-1/32" to 6-5/8" outside diameter, and .145" to 1.169" in wall thickness. It included hot-finished or cold-drawn tubing in low carbon, AISI 1040, AISI 4130, B & W Croloys 5, 9M and 16-13-3 (Type 316) grades. This is the first time that the B & W Croloys 9 and 16-13-3 have been used in equipment for the coal hydrogenation process.

Special operations such as polishing the inside diameter, special ends and center welding for length were performed in meeting the various requirements. One lot of Croloy 9 was center-welded for length, and a special end made from bored billet stock was fusion-welded to one end of the long tube. Entire length was then heat treated to obtain special physical properties.

Most striking factor of tubing furnished was size of wall compared with the outside diameter of the heavy-walled Croloy 16-13-3 used in the high-pressure, elevated-temperature part of the installation. Thus tubing, 4-25/32" outside diameter by 1.169" wall thickness with a polished inside diameter, operates at the unusual combination of 10,300 psi pressure and about 1000°F. Unusually thick walls are necessary to resist tremendous pressure and high temperature.

Streams conveyed in pipelines of the demonstration plant consist essentially of a mixture of hydrogen, light carbon gases, H₂S, nitrogen, oils and coal paste, with temperatures up to 1000°F. B & W Croloy 16-13-3 was selected for all high pressure tubing used in this higher temperature range. A chromium-nickel-molybdenum austenitic stainless steel, its high creep strength makes it especially desirable in this application.

Requirements of the hydrogenation process called for a minimum room temperature tensile strength of 75,000 psi, with creep strength at 1000°F of not less than 23,000 psi to produce 1% elongation in 10,000 hours.

Sequence of the process in its two phases is as follows: Raw coal is crushed, dried, pulverized, and then converted

into coal "paste". This is injected by high pressure pumps into a superheated steam protected radiant heater where it is first heated to about 615°F. A catalyst is mixed with coal paste to accelerate reaction. Hydrogenation reaction begins in the preheater and continues until the products are withdrawn from the converters, which merely provide further time for combining hydrogen gas with carbon in coal.

Coal paste is then subjected to liquid phase hydrogenation, where it is converted into some gasoline, but chiefly into middle and heavy oils. It goes through several more separation processes involving high temperatures and pressures. In the vapor phase each pass through the converters provides a conversion to gasoline of about 50%, with reaction temperatures around 900°F. before injection of cooling gas.

There is sufficient insulation in the vessel construction to permit wall temperatures to remain below that at which there is any appreciable strength loss in the steel due to elevated temperatures. Product from vapor phase is subjected to fractionation to make a finished commercial gasoline. (Babcock & Wilcox, Beaver Falls, Pa.)

Care, correct use of testing equipment vital to good battery maintenance . . .

temperature correction of specific gravity reading is essential; hydrometer must be kept clean

Proper care and correct use of hydrometer and thermometer are essential to efficient battery maintenance.

Care of these instruments is simple. It requires only that they be wiped dry and returned to their assigned place after use. They should be kept clean to prevent foreign particles from entering the battery. Occasionally, hydrometer should be taken apart, float and inside of barrel cleaned, and float examined for defects.

In using hydrometer, sufficient electrolyte should be drawn into barrel to permit float to ride freely, not touching barrel at any point. Hydrometer is held in vertical position, and read with eye level at electrolyte mark. When hydrometer must be removed from vent for reading, nozzle should be pinched tightly or a gloved finger placed against opening to prevent dripping of electrolyte. Float scale is read at electrolyte level from bottom of the curved liquid surface.

Correction of specific gravity is made on the basis of plus or minus 3 points of gravity for each 10°F (electrolyte temperature). Using 77°F. as a base, 3 points of gravity are added for each 10°F above base and 3 points subtracted for each 10°F below.

Correction is necessary to obtain accurate specific gravity readings. As temperature of acid rises, acid expands and is, therefore, not as dense. Float then rides low, giving

readings lower than normal. Conversely, when acid is cold, float rides high and readings are higher than normal. Following are examples of how this correction factor is applied:

Hydrometer Reading	Thermometer	Correction	True Sp Gr.
1.250	87° F	plus 3	1.253
1.210	80° F	plus 1	1.211
1.180	64° F	minus 4	1.176

Some thermometers, especially designed for battery application, are scaled for ready correction of gravity readings. Adjacent to the regular temperature scale is a second column of figures, preceded by a "plus" sign above 77°F and a "minus" sign below. Reading the figures at mercury level ascertains amount of correction necessary. Thus, if hydrometer reading is 1.260 and scale on thermometer indicates plus 8, true specific gravity is 1.268.

When unpacking a new hydrometer, the rubber bulb, glass barrel, rubber nozzle, and float should be checked for breaks or cracks. Any dirt or packing material should be washed from parts to prevent any foreign material from getting into electrolyte. Large end of rubber nozzle slips into glass barrel. To facilitate insertion of nozzle, rubber and glass should be lubricated with plenty of water. Rubber bulb can be attached in same manner. It is advisable to wear gloves when assembling hydrometer as there is always a possibility of glass breakage.

Details concerning hydrometers and thermometers especially designed for battery application and instructions for their use are available from Gould Storage Battery Corp., Dept. CP, Trenton 7, N. J. . . . or for more information check CP 5335A on handy form, pages 2 and 3.

Geiger counter adapted for steel analysis . . .

expected to be faster than the direct-reading spectrograph

The Geiger counter has found its way into the steel industry. Scientists of United States Steel Corporation of Delaware have adapted the instrument for a quick and accurate method of analyzing steel samples. Geiger counter analysis is expected to be much faster than the direct-reading spectrograph. It is used in connection with special spectrographic equipment; has been calibrated for many specific problems.

Instrument is capable of measuring fluorescent rays, each of a special kind, that emanate from a steel sample when its atoms are ionized by powerful X-ray. Measurement of the quantities of the various rays emitted is a short-cut to chemical analysis.

A 20-milliamper, 50-kilovolt, molybdenum target X-ray is being used. Rays flood the specimen, exciting secondary rays characteristic of chemical elements alloyed in the sample. These fluorescent rays are reflected through a narrow slit, at right angles to the path of the primary X-rays, to a monochromator. This crystal is in the center of a circle, $\frac{1}{4}$ of whose circumference is traversed by the Geiger counter in its round of analysis. Counter is moved by motor in this scanning operation.

Counter has been connected to a standard recording instrument which automatically plots the intensities of the various elements on graph paper.

Method of analysis is best adapted to detect and measure elements of "middle" atomic weight — those frequently added to iron and carbon to form steel. Includes chromium, manganese, molybdenum, nickel, etc. (United States Steel Corporation, 208 S. La Salle St., Chicago 90, Ill.)

DECEMBER, 1949

GENERAL FOODS AMORTIZES NIAGARA "Auto-Sluice" FILTER



... In Less Than One Year

Savings like this are unusual in most types of equipment. But not with Niagara "Auto-Sluice" Filters.

At their Certo Plant in Albion, N. Y., General Foods recently replaced three aluminum plate and frame presses of 1475 sq. ft. filter area with this single stainless steel 512 sq. ft. Niagara "Auto-Sluice" Filter for pectin filtration and are pocketing a tidy saving annually.

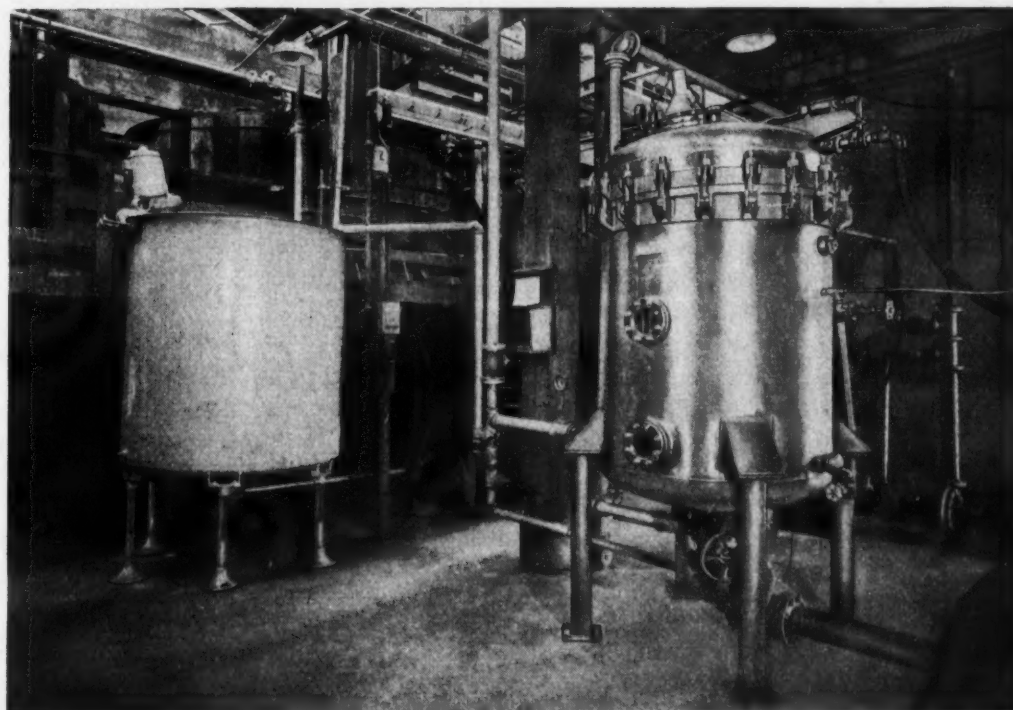
How does the Niagara accomplish these savings?

1. Flow rates on the Niagara stainless steel filter leaves are 7 to 7.5 GPH per sq. ft. compared to 2.5 GPH on old equipment.
2. The entire cost of filter cloths and their washing is

eliminated since Niagara Filters require no cloths.

3. Automatic sluicing of the filter cake without opening the filter effects tremendous labor saving.
4. Total pectin yield has actually increased due to elimination of many filtration losses in old equipment.

Niagara Filters do not perform miracles, but they are improving quality and reducing costs in every processing field. If replacement or repair of your present filter presses is an immediate or future consideration, look into the economies Niagara Filters can bring you. To be sure you have full information on file when you need it, send in the coupon now for a copy of Niagara general bulletin G-447.



Niagara Filter
CORPORATION

3083 MAIN ST., BUFFALO 14, N. Y.

NIAGARA FILTER CORP., 3083 Main St., Buffalo, N. Y.
Please send me a copy of your Bulletin G-447.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____

STATE _____

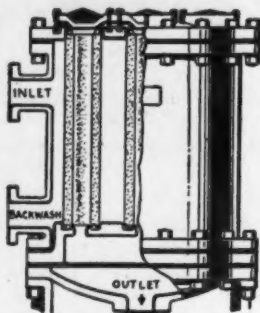
When inquiring check CP 5336 on handy form, pgs. 2-3

ADAMS PORO STONE FILTERS

for High-Degree Crystal-Clear
Filtering of Corrosive Chemicals
CFR (Rubber-lined) CFL (Lead-lined)

Adams Filters are completely enclosed for safety—yet installation is simple and tubes may be inspected or removed without dismantling the filter. All parts in contact with the acid are inert to its action.

Filter tubes are easily and speedily cleaned by backwashing, and may be repeatedly cleaned and used. There is full reclamation of the filtered acid.



Descriptive Circular 303 gladly mailed. A test in your plant of Poro-stone tubes operating under your actual conditions can be arranged on request.

R. P. ADAMS CO. INC. 243 E. PARK DRIVE
BUFFALO 17, N. Y.

When inquiring check CP 5337 on handy form, pgs. 2-3

BIN-LEVEL CONTROLS

2 BIN-DICATORS
Often Replace 1 Man



BIN-FLO

Aerating Units
Keep Things Moving

ECONOMICAL
MATERIAL
CONTROL

DEPENDABLE
BIN-LEVEL
INDICATION

Mail
this
Coupon

THE BIN-DICATOR CO., 13946 Kercheval, Detroit 15, Mich.

Please send new 20-page catalog giving complete information and specifications on BIN-DICATORS. Also please send information on BIN-FLO Aerating Units. CP-10

Name _____
Address _____
City _____ Zone _____ State _____

When inquiring check CP 5338 on handy form, pgs. 2-3

IDEAS

Offer prizes for best papers
on applications of cast
stainless steel . . .

sponsored by valve and fitting manufacturer to encourage efforts in combatting corrosion

Cash and prize awards for the best papers dealing with "Applications for Cast Stainless Steel in the Chemical Industries" will be offered in a contest announced by The Cooper Alloy Foundry Co.

Competition for the best papers dealing with the chemical industry will be the first of a series to cover such other fields as food, textile, paper and pulp, aircraft, petroleum and marine.

Objective is to stimulate interest in existing applications for cast stainless steel. Value of the awards will total more than \$5000.

Cash prizes for the chemical industry contest are as follows: 1st prize — \$250.00 in cash; 2nd prize — \$150.00; 3rd prize — \$100.00.

Contestants are advised to cover the following points in their papers: (a) Where, in the chemical industry, are stainless steel castings used? What processes or what types of equipment? (b) What type of castings are used? What functions do they perform? Of what alloys are they cast? (c) Why are stainless castings used in these applications? What corrosive agents are handled? What heat requirements must be met? What economies are achieved?

Chemical field contest closes May 1, 1950. Awards will be made within one month of closing date of each contest. (Complete information is available from The Cooper Alloy Foundry Co., Hillside, N. J.)

Reduce cyclotron size by 1/3;
special cooling oil permits
closer coil winding . . .

direct contact with the magnetic copper windings does not cause break-down

A special oil, developed by Gulf Oil Co., will be used to cool the two giant 90-ton magnetic coils of the 400-million electron volt synchro-cyclotron at Carnegie Tech, Saxonberg, Pa.

This "cyclotron oil", as it is named, permits direct-contact cooling of the cyclotron's copper magnetic coils, and hence enables them to be wound more closely than previous coils.

Indications are that the resulting magnet will be the most efficient yet developed for this type of service. Nevertheless it will be one-third smaller than others of similar capacity.

This oil, donated to the cyclotron project, will carry off heat from cooling channels as narrow as 1/16" between coil windings. It has the unusual characteristic of resisting break-down or sludging under the destructive catalytic action of copper. It is a good electrical insulator.

An elaborate circulating system will pump oil upwards through some 24,000 channels in the magnetic coils, and thence to a heat exchanger. There it will be cooled by water from a 42' external cooling tower and returned to the machine.

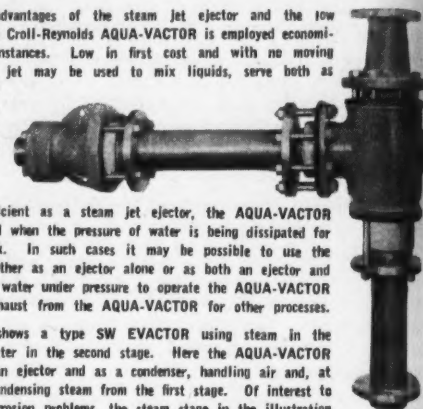
About 1,300,000 Btu's of heat dissipated each hour by the magnetic coils will be continuously carried off.

Oil capacity of the installation is 900 gallons. When the cyclotron is operating, oil will keep magnet temperatures at between 30 and 45°C. Not only would continuously uncooled operation destroy coils but higher

How Aqua-Vactors Produce Vacuum With Water

• CR Aqua-Vactor Uses Water
as Motivating Fluid

Combining the advantages of the steam jet ejector and the low cost of water, the Croll-Reynolds AQUA-VACTOR is employed economically in many instances. Low in first cost and with no moving parts, the water jet may be used to mix liquids, serve both as an ejector and condenser, and in isolated cases, handle air and gases.



While not as efficient as a steam jet ejector, the AQUA-VACTOR becomes economical when the pressure of water is being dissipated for other process work. In such cases it may be possible to use the AQUA-VACTOR either as an ejector alone or as both an ejector and a condenser using water under pressure to operate the AQUA-VACTOR and using the exhaust from the AQUA-VACTOR for other processes.

The illustration shows a type SW EVACTOR using steam in the first stage and water in the second stage. Here the AQUA-VACTOR is used both as an ejector and as a condenser, handling air and, at the same time, condensing steam from the first stage. Of interest to engineers with corrosion problems, the steam stage in the illustration is constructed of carbon including the steam nozzle. The carbon is incased in cast iron giving the equipment the strength of iron and the corrosion resistance of carbon.

For more complete information concerning the application of the AQUA-VACTOR, or any type of steam jet EVACTOR, write today to:

Croll-Reynolds Co., Inc.
17 JOHN STREET, NEW YORK 7, N. Y.

When inquiring check CP 5339 on handy form, pgs. 2-3

The miracle of AUTOMATIC LUBRICATION for NORDSTROM VALVES



AN *energizable* LUBRICANT

Keeps Nordstrom valves in 100% perfect lubricated condition. Saves man-hours. Self-feeding. Fills voids instantly. Prevents leakage. World's first compressible and expensible lubricant. Keeps valves pressurized without frequent turning of lubricant screw.

Self-Sealing
Self-Acting
Quick action
Tried - Tested

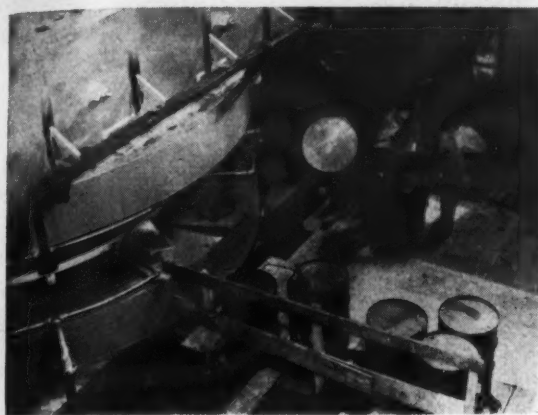
ROCKWELL
Hypermatic
LUBRICANT

First and only genuine automatic valve lubricant. Ask for Bulletin

NORDSTROM VALVE DIVISION — ROCKWELL MANUFACTURING CO.
400 North Lexington Avenue Pittsburgh 8, Pennsylvania

When inquiring check CP 5340 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview



Drums of oil arrive to cool magnetic coils (left)

temperatures would reduce magnetic efficiency.

Interval at which the oil will have to be changed is not known. However, when oil is removed from the system, it will have to be handled with extreme care, as it will be just slightly radioactive. (Gulf Oil Corp., Pittsburgh, Pa.)

**Move 300 tons of coal per hr.
on mile-long nylon-and-
cotton-fiber belt . . .**

tough material resists tearing; flexibility allows easier training over idlers; spillage reduced

Nylon, when used as a cross-fiber in combination with cotton yarn as a longitudinal fiber provides conveyor belts that admirably meet the hard service requirements of mines. Belts utilizing nylon fiber are now operating satisfactorily in copper and iron ore mines, as well as in coal mines.

A 2000 foot belt is in service in an Arizona copper mine, while one over a mile long carries 300 tons of coal per hour in a Pennsylvania mine. Another nylon-cotton fiber belt is to be used to carry wood chips in a paper mill.

Development and commercial production of these belts, now being produced by United States Rubber Company, was delayed during the war.

Use of nylon in combination with cotton yarns makes possible a greater number of fabric plies, increasing the overall belt strength by as much as 250%. At the same time, nylon lends far greater flexibility to thick belts. The belts' tear resistance and toughness is also exceptional. Spillage, a constant problem, is kept at a minimum by greater belt flexibility and easier training on idler pulleys. (Nylon-cotton fiber conveyor belts are a development of United States Rubber Company, Dept. CP, Rockefeller Center, New York 20, N. Y. . . . or for more information check CP 5341 on handy form, pages 2 and 3.)

**Catalogs 37 glass cylinders
to 8 3/4" diameter**

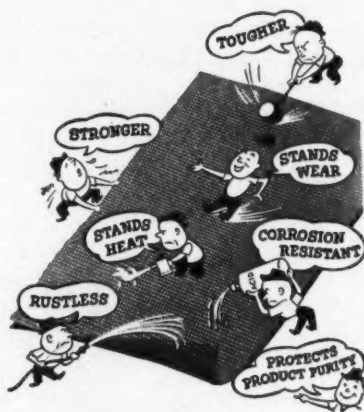
Thirty-seven glass cylinders varying in length and ranging from 1 1/4 to 8 3/4" in outside diameter are cataloged in 6-page folder. Various finishes are available, as are special sizes and types of glass.

"Dunbar Glass Cylinders", issued by the Dunbar Glass Corporation, Dept. CP, Dunbar, W. Va. When inquiring specify CP 5342 on handy form, pages 2 and 3.

DECEMBER, 1949

This Screen and Filter Cloth

really stops trouble!



Monel Nickel Inconel



"Task Metals" for Industry

What kind of "trouble" is cutting down the life of your filtering, screening or conveying cloth?

Is it rust . . . corrosion . . . vibration . . . impact . . . wear . . . heat . . . cold . . . high pressures? Or, does your trouble stem from product contamination?

If any of these is your particular problem, consider the relief you'd get from wire cloth made of Monel*, Nickel or Inconel* . . . the "task metals" of industry.

Wire cloth made of the "task metals" has extra strength to resist damage by heavy pressures and impact; extra hardness to resist abrasive wear; extra endurance at extreme temperatures.

It is completely rustproof; highly resistant to corrosion by most acids, alkalies and salts.

Compare its many advantages with any fabric or metal cloth you now use. Better yet, prove its merit to yourself by making a comparative-life test right in your own plant.

And, did you know this? The easy-working qualities of these metals enable weavers to produce cloth of Monel, Nickel or Inconel at prices comparable to what you are now paying for less durable metals. *Fine weaves of Monel and Nickel often cost less!*

All weaves and meshes are available. Corrosion-resisting seams are easily made by brazing, soldering or welding. Write Frank Bailey of Inco for booklet, "ESTABLISHED WEAVERS."

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York 5, N. Y.

*Reg. U. S. Pat. Off.

When inquiring check CP 5343 on handy form, pgs. 2-3



- ACCURATE to 1% of full scale reading
- DIRECT DRIVE no gears or linkage
- PRESSURE-PROOF in excess 3476 lbs. psi

DILLON

stainless steel thermometer

★ Stand back and look . . .

Distinctive, readable dial figures give instant—accurate—positive readings at a distance. Safely away from heat, gases, liquids. No eye-strain—head cranning with Dillon Thermometer.

Stainless steel construction assures long serviceable life. Can be used without pre-heating. Dillon Thermometers are anti-corrosive, moisture-proof, overheat-proof and individually calibrated. May be screwed into tanks, boxes, boilers, etc.—floated in vats or placed directly into molten metal.

To make sure every Thermometer is typically Dillon in ruggedness and reliability, each is rigidly checked and given a complete heat test before it is packed. Write today for bulletin.

THERE IS A DILLON THERMOMETER DESIGNED FOR YOUR SPECIAL NEEDS

RANGE	STEM LENGTHS Stainless Steel Type 304	DIAL Clear Glass Crystal or Unbreakable Plastic MODEL AND SIZE
Fahrenheit:		
0-200° 50-300°	4"–5"	Model S–5" dial
50-500° 150-750°	6"–9"	Model R–3" dial
200-1000°	12"–18"	Model H–2 1/4" dial
Centigrade:	24"–30"	Model Q–1" dial
0-100° -10-110°	36"–42"	
0-150° 0-300°		

W. C. DILLON & CO., INC.
PRECISION INSTRUMENTS FOR PRECISION TESTING
Complete catalog sent on request



IT'S FOR YOU . . . FREE TENSILE STRENGTH COMPUTER that tells in seconds the tension at which round or rectangular specimens will break. Complete information on Dillon Thermometer sent along, too.

W. C. DILLON & CO., INC.
5410-A W. Harrison St., Chicago 44, Illinois

Please send me at once, your FREE Tensile Strength Computer and Complete information on the Dillon Thermometer.

Firm _____
Individual _____
Address _____
City _____ Zone _____ State _____

When inquiring check CP 5344 on handy form, pgs. 2-3

Records Concentration of Sulfur Compounds in Gas Streams

Recorder has fluid absorbers which permit selective measurement of certain classes of compounds

USES: Continuously records concentrations of sulfur compounds in gas streams. Analyzes air or other gases for such compounds as sulfur dioxide, hydrogen sulfide, mercaptans, thioethers, disulfides, etc. Especially useful in monitoring or control applications.

Features: Can make selective measurements of compounds of specific interest. Unit has full response to change in concentration within 20 seconds.

Description: Known as Model 26-102 Titrllog, unit provides continuous reaction between electrolytically-generated bromine and the reactive sulfur compounds. Only enough bromine is supplied to the titration cell to react with the sulfur compounds, so that a very low "end point" concentration of bromine is left in the cell at any time.

Electronic amplifier controls generation of bromine in accordance to demand in titration cell; amplifier output gives indication of concentration of reactive compounds.

Fluid absorbers are supplied to permit selective measurement of certain classes of compounds. These filters are connected in the inlet system together with automatic valves for placing them in operation. Three filters are provided on standard model; these absorbers may be set to operate automatically in any sequence.

Incoming gas and air are supplied to instrument at atmospheric pressure. Reduced pressure is maintained at

outlet of titration cell by vacuum pump, and flow rate of incoming mixture is regulated by orifice at inlet. This assures operation at fairly constant flow rate, while the actual flow rate of gas to be analyzed may be varied over wide range.

Maximum sensitivity is 0.005 grains of mercaptan sulfur per 100 cu. ft. of gas, when operating at maximum gas-flow rate of 1 liter per minute.

Accuracy varies somewhat with different compounds, but with calibration for compounds of special interest, accuracy within plus or minus 5% can be maintained.

Unit is housed in cabinet 66 x 22 1/2 x 18 1/2", as illustrated above. Operates from 115 v., 60-cycle outlet, requires approximately 6 amps.



Gives continuous record of concentration of sulfur compounds in any gas stream

Source: Produced by Consolidated Engineering Corp., Dept. CP, 620 No. Lake Ave., Pasadena, Calif. . . . or for more information check CP 5345 on handy form, pages 2 and 3.

Photoelectric scanner detects blemishes in sheet material . . .

has long-lived vacuum tubes instead of gas-filled; compact unit uses but one lens system

Uses: Responds to any small sudden change in quantity of light which reaches photoelectric tube. Can be used to detect presence of seams and blemishes in any uniform sheet material such as textiles, plastic sheeting, metals, etc.

Features: Unit employs vacuum tubes which have much longer life than customary gas-filled tubes.

Description: Light source, phototube and amplifier are contained in 1 housing. Common lens system is used both to send and to receive light, thus reducing scanning assembly to extremely compact unit.

Light originates at light source, is projected upon material as small spot of high intensity. Light is reflected back to phototube. Any sudden change in light received, such as that caused by an abrupt change in thickness or appearance of sheet, will operate phototube.

Units are supplied for operation on 100-120 v AC or 200-240 v AC. Contacts are single-pole, double-throw, are rated at 10 amps for 115 v., at 5 amps for 230 v. Impulse of less than .001 sec will operate tube. Light spot measures 1/8 x 1/64". This control, known as Type 23LF3, weighs 20 lbs., can operate in temperatures up to 100°F.

Source: Photoswitch, Inc., Dept. CP, 77 Broadway, Cambridge 42, Mass. . . . or for more information check CP 5346 on handy form, pages 2 and 3.

Insertion-type conductivity cells are easily removed from gate-valve holder . . .

variety of cells are available, as is a conductivity bridge for directly reading HCl concentration

Uses: Insertion-type cells are available for measuring concentrations of wide variety of solutions. Gate

valve holder permits quick changing of insertion cells. Conductivity bridge gives direct reading of concentrations of hydrochloric acid solutions.

Description: Conductivity cells are available for many different solutions, with cell constants ranging from 0.01 to 2.0. Constructed of Type 316 stainless steel as well as bronze and brass. Cells can be furnished with built-in temperature compensators.

Gate valve removal device facilitates quick changing of cells when necessary.

Conductivity bridge for direct reading of hydrochloric acid concentration covers range from 1 to 20% HCl. Unit embodies manual temperature compensator with range of 64 to 190°F. Bridge is line-operated, has 3000-cycle bridge-source oscillator.

Source: Industrial Instruments, Inc., Dept. CP, 17 Pollock Ave., Jersey City 5, N. J. . . . or for more information check CP 5347 on handy form, pages 2 & 3.

Field testing for corrosion is facilitated by portable potentiometer . . .

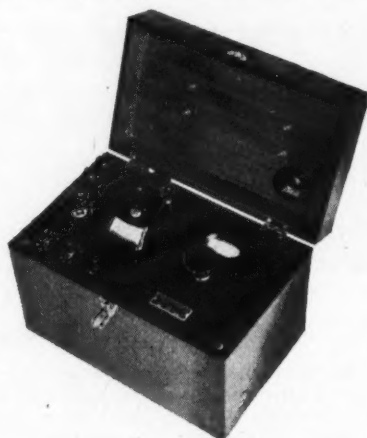
unit is powered by 2 flashlight batteries, has total range of from 0 to 4.1 volts

Uses: For investigating galvanic and electrolytic action along pipe lines, cables and other buried metal structures.

Features: Voltage reversing key makes it possible to measure opposite polarities without changing leads. Standardization is not affected by reversing polarity or by changing ranges.

Description: Total range of potentiometer is from 0 to 4.1 volts, measurable in 1-millivolt steps. Voltages are covered in 12 different ranges, some of which overlap.

Current is provided by flashlight batteries. Binding posts make possible connection to external 6-volt DC source when needed. Entire set, including potentiometer, batteries, galvanometer and standard cell, is included in oak carrying case. Weight is 10½ lbs.



Potentiometer for field investigation of corrosion

Source: Leeds & Northrup Co., Dept. CP, 4934 Stenton Ave., Philadelphia 44, Pa. . . . or for more information check CP 5348 on handy form, pages 2 & 3.

Control gate valves with hydraulic cylinders

Single-sheet brochure describes use of hydraulic cylinders to control large gate valves in paper mills and other plants handling pulp or similar liquids. Photo shows cylinders being inspected before shipment.

Specifications are also provided in Bulletin CS 649, issued by Ledeen Mfg. Co., Dept. CP, 1600 So. San Pedro St., Los Angeles 15, Calif. When inquiring specify CP 5349 on handy form, pages 2 and 3.

DECEMBER, 1949

"SAVES 2000 LBS. STEAM PER HOUR"

with Taylor Compressor Control

One of the largest refineries in the country reports that Taylor automatic compressor control with Speed Transmitter has saved them as much as 2000 lbs. steam per hour per compressor in the past year. It can do much the same for you.

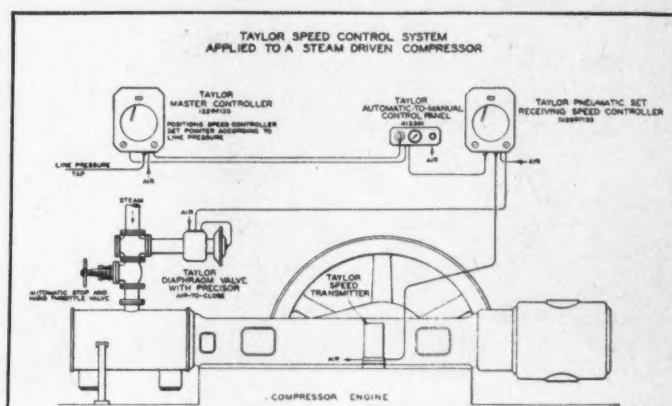
Like all other process industries, for many years this refinery held compressor speeds within certain limits by manually adjusted governors—regardless of changes in process conditions.

Now in the face of today's more rigid processing requirements, Taylor Compressor Control Systems combined with Speed Transmitters give you fully automatic control of compressors with direct relation to other variables in your process. These new compressor control systems were developed by Taylor Engineers working hand in hand for years with leading compressor manufacturers.

This all adds up to one important point. **When a compressor's function is closely controlled according to process requirements, substantial economies result from reduced fuel consumption as well as higher yields of quality end product.**

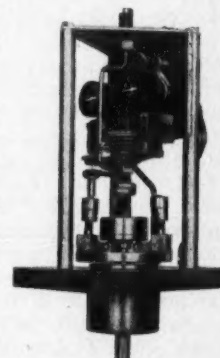
We can furnish a rugged, dependable control system for any type of drive. Ask your Taylor Field Engineer! Or write Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.



HERE'S HOW THE SPEED TRANSMITTER WORKS

Briefly, it's a dependable pneumatic force-balance instrument. Principal parts: drive shaft, rotating table, flyweights and pneumatic force-balance assembly. The full range of engine speed causes but slight change in the radial position of flyweights to effect full output air pressure change. Since radius is essentially constant, centrifugal force of flyweights increases as the square of the speed. Consequently the air pressure to the force-balance bellows and the receiver Speed Controller must vary as the square of the speed. Drawing above shows how Speed Transmitter teams up with Taylor Pressure Controller, Pneumatic Set Speed Controller and diaphragm control motor to maintain constant discharge pressure from a compressor on a process.

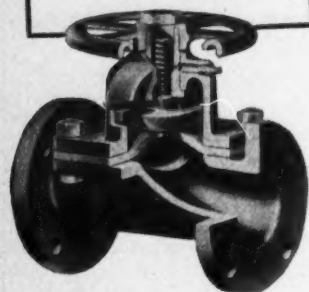


TAYLOR INSTRUMENTS MEAN ACCURACY FIRST

When inquiring check CP 5350 on handy form, pgs. 2-3

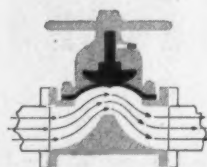
This Simple Principle

makes
HILLS-McCANN
diaphragm valves
unexcelled
for handling
corrosive materials,
slurries
and semi-solids



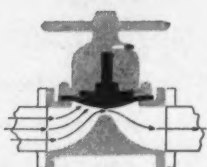
● When it comes to valving hard-to-handle fluids, the simple pinch clamp principle of Hills-McCanna valves (see above) eliminates most ordinary valve troubles. There is no leakage, no packing and material handled cannot contaminate or be contaminated by the working parts. Hills-McCanna Saunders patent diaphragm valves are the answer to many of the most serious valve problems. Write for full details and ask for a copy of Catalog V-48. **HILLS-McCANN CO.**, 2370 West Nelson Street, Chicago 18, Illinois.

open



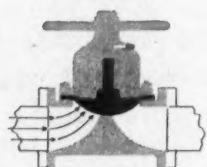
Compressor is raised, lifting diaphragm by means of a stud molded into the material.

throttling



Compressor and diaphragm partially lowered. Compressor design guides and supports diaphragm.

closed



Compressor presses diaphragm tightly against seat pinching off flow and making a tight seal.

FOR 66° B_é
SULPHURIC
Hills-McCanna
now offers
new plastic
diaphragms for
handling 66°
B_é sulphuric.
Write for details.

HILLS-McCANN
saunders patent
diaphragm valves

Also manufacturers of Proportioning Pumps
Forces Feed Lubricators • Magnesium Alloy Castings

When inquiring check CP 5351 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

**Test compression, flexure of
plastics, glass, ceramics,
cartons, boxes . . .**

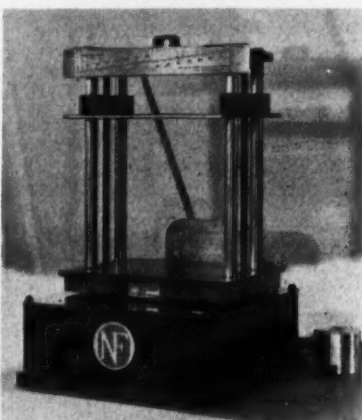
750-lb compression testing machine has linear scale; speed can be varied from 0 to 2.5 in/min

Uses: For making standard crush tests of boxboard, and for flexure and compression tests on variety of small containers, drums, other small articles.

Adaptable to general compression testing of springs, flexure tests on plastics, glass, ceramics, insulation board and similar materials.

Features: Speed may instantly be set anywhere from 0 to 2.5 inches per min.

Description: Specimen is placed upon lower platen. Upper platen is driven down upon it by 2 screws rotating in fixed nuts. Four rigid guide columns keep the driving platen parallel to lower platen at all times.



Amount of crush is measured in lbs by simple lever and pendulum system. Ranges of 0 to 75 and 0 to 750 lbs are supplied; addition of ballast weight to pendulum pin brings higher scale into operation. Actuator arm moves maximum load indicator across an open, linear, eye-level scale.

Makes compression tests on boxes, cartons, drums, etc; flexure tests on plastics, glass, ceramics, insulation, similar materials

Speed is regulated by Graham variable-speed drive. Unit is powered by 1/12 HP, 110 v. AC motor. Limit switches protect against over-travel.

Further information on 750-lb compression testing machine is carried in maker's brochure 492-V.

Source: National Forge and Ordnance Co., Dept. CP, Irvine, Warren County, Pa. . . or for more information check CP 5352 on handy form, pages 2 and 3.

**Determine viscosity of paint,
oils, varnish, lacquer with
Ford No. 4 cup . . .**

solid aluminum unit is easy to clean, is furnished with receptacle, bubble level, cover glass

Uses: Designed especially for determinations of viscosity of paints, lacquers, oils, varnishes, similar liquids.

Features: Machined from solid block of aluminum, unit provides flow characteristics identical to those of original Ford No. 4 cup. Easy to clean, since inaccessible areas have been eliminated.

Before shipment, each cup is adjusted to the flow formula and is accurate within plus or minus 2% throughout its usable range.

Description: Unit is furnished complete with pre-heating receptacle, bubble level, cover glass and cleaning swabs.

FURNACE FLOGUIDE

**measures gas flows accurately—
helps maintain proper
furnace conditions**

Critical flow rates of gases are accurately controlled by the Furnace FLOGUIDE. It warns the operator immediately of any changes by means of a visible float which moves up or down in direct proportion to the flow rate.

IMPROVED DESIGN

Tough corrosion-resistant stainless steel is used for the metering tube. Greater visibility is provided. Twin capacity scales are arranged to give the maximum viewing angle possible. Neat panel mounting is assured. The piping requirements are reduced to a bare minimum.

The heavy cylindrical glass indicator tube is protected against damage from accidental external blows by a stiffener rib in front of it. This feature in no way decreases the visibility of the metering float.

Write for further information.



The Fig. 483
Furnace FLOGUIDE
with a 10" scale

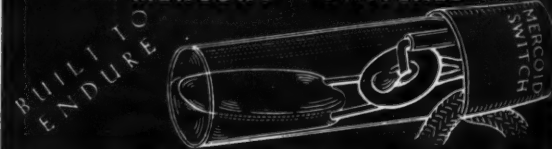
FISCHER & PORTER COMPANY

Dept. 9Z-9E

Hatboro, Pa.

When inquiring check CP 5353 on handy form, pgs. 2-3

MERCOID
MERCURY SWITCHES



**Universally Known for Their
Superior Quality and Workmanship**

They are not affected by dust, dirt or corrosion and have many definite applications where open contacts are not suitable. Various types available. MERCOID is your guarantee of the best in mercury switches. Further information sent upon request.

LET MERCOID SOLVE YOUR CONTROL PROBLEMS



They rank first for convenience of adjustment—dependable service and long life.

They are designed for various applications requiring the control of pressure, temperature, liquid level and mechanical operation.

Complete Mercoid Catalog sent upon request.

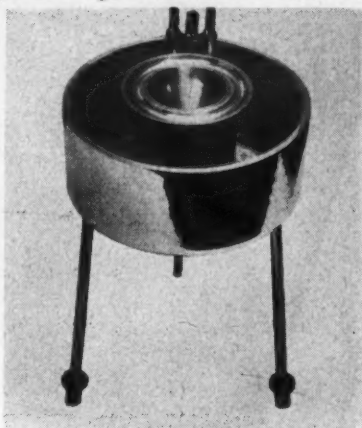
THE MERCOID CORPORATION, 4201 BELMONT AVE., CHICAGO 41, ILL.

When inquiring check CP 5354 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESS INSTRUMENTATION

Illustration shows viscosity cup in place in aluminum water bath with adjustable legs. This bath is filled with water which is maintained at desired temperature by connecting built-in water coil to present constant temperature equipment through use of circulating pump. If desired, special constant temperature water bath is available.



Ford No. 4 cup in aluminum water bath

Source: Henry A. Gardner Laboratories, Inc., Dept. CP, 4723 Elm St., Bethesda, Md. . . or for more information check CP 5355 on handy form, pages 2 and 3.

Measure surface, rotational speeds with accuracy within 0.5% . . .

DC generator gives voltages proportional to speeds; remote indicator has 4 overlapping ranges

Uses: To measure rotational speeds in rpm, surface speeds in fpm.

Features: Maintains accuracy within 0.5% of full scale value at either low or high ranges.

Description: DC magneto generator produces a voltage directly proportional to speed being measured, transmits this measuring voltage to indicator which may be mounted up to 500' away.



Illustrates indicator, DC generator, extension shaft, driving points and cutmeter wheel for measuring surface and rotational speeds

Unit measures surface speeds from 0 to 5000 fpm, shaft speeds from 0 to 25,000 rpm. Indicator has 4 overlapping ranges, thus permitting check upon readings taken at ends of the scale.

Tachometer-cutmeter

requires no external source of power, can be used for either continuous or intermittent readings. Two styles of driving points, extension shaft and cutmeter wheel permit easy application of the instrument to practically any rotating or moving object.

Entire assembly can be carried in oak case supplied with instrument. More information on the portable tachometer-cutmeter is provided in maker's Bulletin 492.

Source: Electric Tachometer Corporation, Dept. CP, 2218 Vine St., Philadelphia 3, Pa. . . or for more information check CP 5356 on handy form, pages 2 and 3.

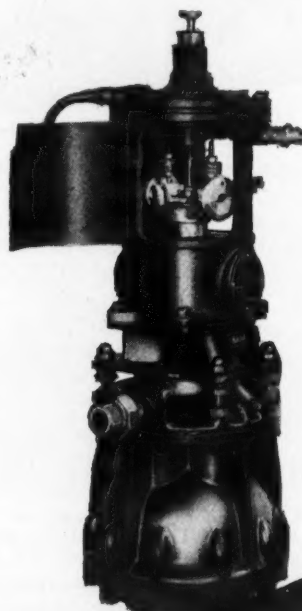
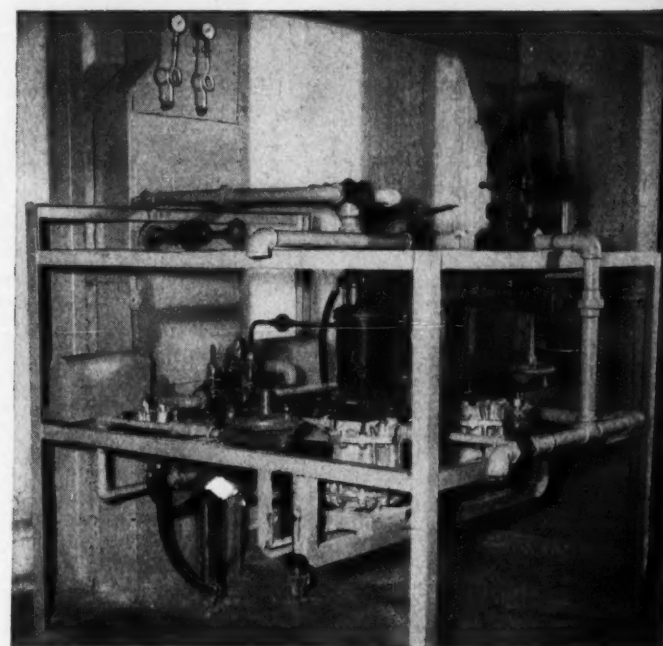
Want Automatic Control of Liquids . . .

LIKE FUEL OIL, MOLASSES, BEER, GASOLINE OR COTTONSEED OIL ?

Use Askania Controls

Here's How One Plant Did It . . .

In this case, at a feed mill, either molasses or concentrated fish solubles are mixed with various dry ingredients in the preparation of commercial cattle feeds. Gravimetric feeders were selected to deliver the dry ingredients at a predetermined, constant rate. But how to deliver the liquids at a continuous, predetermined rate was a problem. The Askania Transometer, designed for the accurate metering of liquids at an automatically controlled rate, was the practical, efficient answer. An Askania Unit Regulator is used to control operation of a control valve.



Wherever you have a need for accurately measuring and controlling the flow of liquids such as molasses, fuel oil, beer, gasoline, cottonseed oil, etc., you have a need for Askania Controls. The Askania Transometer (shown at left) accurately measures flow, regardless of changes in viscosity, pressure or temperature.

The metering system operates on the positive-displacement, piston-type method of measurement with the meter cylinders acting as measuring cups. Whether a fluid is used in just small amounts or full capacity none can pass through this metering system without being accurately measured.

The Askania Transometer is finding many applications in the steel, glass and process industries . . . for proportioning and mixing . . . for fuel-air combustion control and many others. Where can you use this efficient measuring system?

Send for Bulletin

Askania Bulletin No. 125 gives additional information on the operation and use of the Transometer. Send for your copy.



ASKANIA Controls

ASKANIA REGULATOR COMPANY

A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORPORATION

242 EAST ONTARIO STREET

CHICAGO 11, ILLINOIS

When inquiring check CP 5357 on handy form, pgs. 2-3

HOT WATER COSTS



Sarco on Hot Water
Storage Tank in Office
Building

WHEN IT'S TOO HOT OR TOO COLD

Hot water is a critical service, in buildings, in homes, or in industry. Poor service can be "explained" for a time. But when tenants get scalded, or workers "wait for it to warm up" because the water is too cold, things begin to happen that cost you money every day.



Sarco Blender in Apartment

TANKS

If you have a storage tank — any one of several Sarco Trap-Control combinations will insure constant tank temperatures, Sarco never overheats — therefore it saves fuel.

APARTMENT

"We put in a Sarco Blender at a cost of less than a dollar per apartment — now no complaints and much less water is wasted waiting for it to get right."

INDUSTRIAL APPLICATIONS

The Sarco Water Blender is doing a good job in industry too. It insures exact temperatures at the point of use. In foods, it saves raw materials and rejected batches by having the water just right at the cooker or mixer. It is used for recirculating brine and cooling water in engines and compressors, and is the standard for wash rooms and gang showers. Bulletin No. 800.



THE
SARCO
WATER
BLENDER

SARCO
SAVES STEAM

IMPROVES PRODUCT QUALITY AND OUTPUT

SARCO COMPANY, INC.

Represented in Principal Cities

Empire State Building, New York 1, N.Y.
SARCO CANADA, LTD., TORONTO 5, ONTARIO

PROCESS INSTRUMENTATION

All data on flow characteristics of viscous liquids are given by rotational viscometer . . .

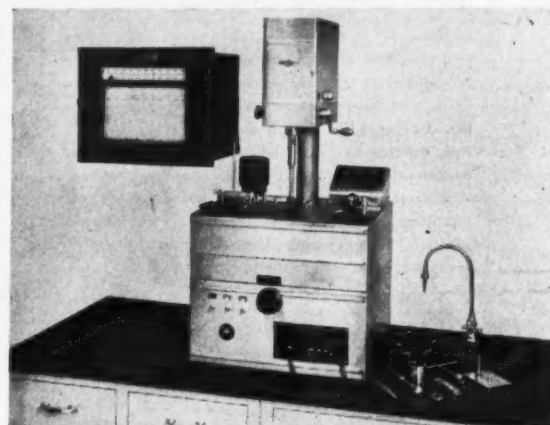
measures and records viscosity from 0.001 to 1000 megapoises at various rates of shear

Uses: To present complete evaluation of high-consistency materials having complex flow characteristics. Determines viscosity, degree of flow complexity and relative elasticity.

Designed primarily for testing roofing, paving and water-proofing products, viscometer is completely suitable for use on viscous paints, varnishes, adhesives, plastics and similar materials.

Features: Measures and records viscosity from 0.001 to 1000 megapoises at various rates of shear. Temperature is controlled within 0.1°C at any point from 20 to 100°C.

Description: Sample cup is rotated, causing viscous drag on stator immersed in sample. Resultant torque is



Viscometer gives all details of complex flow characteristics

recorded by Brown recorder through Statham strain gauge.

Sample cup can be rotated at any of 10 speeds from 0.0696 to 2200 rpm; these speeds are in direct relation to rate of shear. Speeds are changed by shifting lever on front panel.

Constant-temperature bath is controlled by thermostat in conjunction with mercury-to-mercury relay. Bath is provided with coil for refrigerant if low temps are needed.

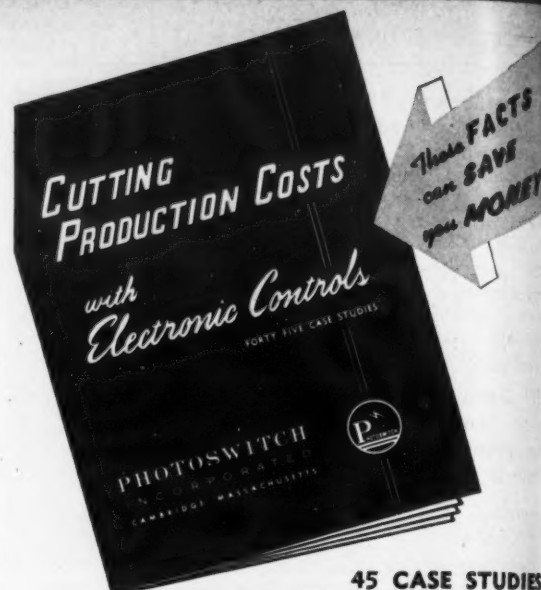
Housing is of stainless steel with Bakelite top. Top has provision for heating 4 samples while the fifth is being tested. Overall dimensions are 66 x 24 x 20".

Source: High-consistency Rotational Viscometer was developed in conjunction with The Texas Company by Precision Scientific Co., Dept. CP, 3737 W. Cortland St., Chicago 47, Ill. . . . or for more information check CP 5359 on handy form, pages 2 and 3.

Make accurate analyses of stainless and tool steels in 2 to 3 minutes . . .

direct-reading spectrophotometric analyzer is more accurate than spectrochemical methods

Uses: To provide quick, direct-reading method of tool and stainless steel analysis.



These FACTS
can SAVE
you MONEY

45 CASE STUDIES

each describing an industrial control problem which has been solved through the use of electronics. Not a catalog . . . it shows HOW photoelectric and electronic controls count, guard, sort, weigh, measure, maintain liquid levels, program operating cycles and do countless other tasks with unflinching accuracy and amazing speed.

Write for your copy today.



PHOTOSWITCH INCORPORATED

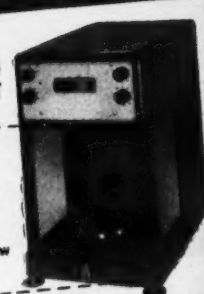
77 Broadway, Cambridge 42, Massachusetts

When inquiring check CP 5360 on handy form, pgs. 2-3

FISHER Gramatic BALANCE

A NEW, DIRECT-READING ANALYTICAL INSTRUMENT

- Fast weighing (20 seconds)
- No weights to handle
- Beam under constant load
- One-scale reading
- Constant sensitivity
- Completely automatic below 100 milligrams



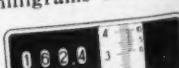
weighs in one-third the time required by the usual balance.

Turn control knobs to select built-in weights. Corresponding figures appear on the direct reading scale.

Weights under 100 milligrams are indicated automatically.

The Gram-at-ic Balance weighs samples up to 200 grams.

For 115 and 230 volt 50-60 cycle A.C. \$895 each



Weight is read directly on indicator.

FISHER SCIENTIFIC CO. **EIMER AND AMEND**

211 Congress St., Pittsburgh 19, Pa. 2100 Lorain St., St. Louis 3, Mo. 111 E. 42nd St., New York 17, N.Y.

When inquiring check CP 5361 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

When inquiring check CP 5358 on handy form, pgs. 2-3

Features: Total time of analysis for all metallic elements is 2 to 3 minutes, including sample preparation. Duplicate analyses on one sample can be made in total time of 3 to 4 minutes.

Description: Equipment includes a two-meter spectrometer, recording console and power unit. Precision attained for chromium and nickel is higher than that achieved by spectrochemical methods. Tests on rolled and cast samples gave standard deviations of from 0.3% to 0.4% of the quantity measured. Thus, 18% chromium determination has accuracy of 0.07%, 8% nickel determination has accuracy of 0.03%.

Source: Further information is available from Applied Research Laboratories, Dept. CP, 4336 San Fernando Rd., Glendale 4, Calif. . . . or for more information check CP 5362 on handy form, pages 2 and 3.

Compare 2 independent signals simultaneously with dual-channel oscilloscope

unit places 2 separate traces on 1 screen, avoids inaccuracies of electronic switching

Uses: To compare 2 independent variables on 1 screen. Speed and vibration, velocity and acceleration, input and output signals of amplifiers, and any other pair of variables which can be converted into electrical signals can be observed simultaneously.

Features: Since both signals are presented at one time on 1 oscilloscope, as 2 separate traces, portions of these signals are never lost as is the case when 2 signals are imposed on 1 screen in rapid succession by electronic switching.

Description: Two separate and complete electron guns are contained in a single 5", flat-face tube. Each channel has separate controls for intensity, focus, and X, Y, and Z axes.



65-lb oscilloscope can superimpose 2 separate signals on 1 screen

Vertical deflection sensitivity is 0.1 v DC per inch. Vertical amplifiers have conductive differential input when used in the 1X attenuator setting, thus allowing the use of push-pull pre-amplifiers.

Triggering is in sweeps of from 2 cps to 50 KC; delay after triggering is less than 1 microsecond. Calibration voltage is continuous and indicated, from 0 to 1v. peak to peak, on panel voltmeter.

Range is governed by attenuator setting. Instrument will accept signals to 100 volts. Unit weighs only 65 lbs; cabinet measures 21 x 16 3/4 x 14 1/4". Quick-opening panels bring any part into view within 30 seconds.

Source: Model H-21 Dual-channel oscilloscope is produced by the Electronic Tube Corp., Dept. CP, 1200 E. Mermaid Lane, Chestnut Hill, Philadelphia 18, Pa. . . . or for more information check CP 5363 on handy form, pages 2 and 3.

DECEMBER, 1949

why CRANE DIAPHRAGM VALVE DESIGN is Superior

LONGER DIAPHRAGM SERVICE LIFE—Diaphragm is not subject to cutting, crushing, and rapid wear since it is used *only* to seal the bonnet; not for seating purposes.

POSITIVE SHUT-OFF in case of diaphragm failure. *This is an exclusive Crane safety feature.*

ACCURATE SEATING—Circular flat face disc with resilient neoprene seating surface gives tight closure—independently of diaphragm—on all fluids.

GREATER FLOW CAPACITY—Y-pattern body design gives closer approximation to straight-line flow, reduces resistance and pressure drop.

EASIER OPERATION—Less torque—fewer turns—needed to operate valves—especially in larger sizes.

PLAIN IRON OR NEOPRENE-LINED—Unlined valves will handle all common services. Neoprene-lined valves are recommended for fluids corrosive to iron but non-active chemically upon neoprene.

SEND FOR THIS NEW CIRCULAR

Contains complete information about these outstanding valves—including all essential specification data, service recommendations, and list prices. Ask your Crane Representative for your copy, or WRITE FOR CIRCULAR AD-1761. No obligation.

CRANE CO., 836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers Serving All Industrial Areas



WORKING PRESSURES:

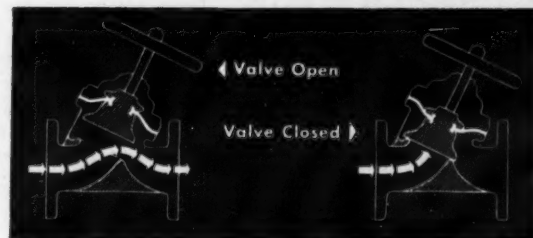
150 Pounds
water, oil, air, or gas;
1/2 through 4-in. sizes

125 Pounds
water, oil, air, or gas;
6-in. size only

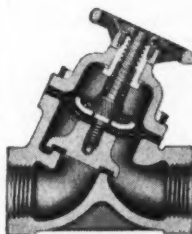
180 Deg. F.
max. temp.; all sizes

HOW IT WORKS

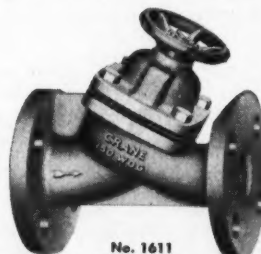
The Crane diaphragm performs one job only—sealing the bonnet against line fluids. The seating member is a separate circular flat face disc, firmly attached to the stem and joined to the diaphragm with a special leakproof connection. This independent seating arrangement permits positive shut-off of flow, even in case of diaphragm failure.



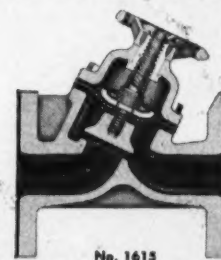
NOW AVAILABLE IN SIZES UP TO 6-INCHES



No. 1610
Screwed ends
1/2 to 2-in.



No. 1611
Flanged ends
1/2 to 6-in.



No. 1615
Neoprene-lined, Flanged ends
1/2 to 6-in.



2 1/2, 3, 4, and 6-in. valves,
Plain iron or Neoprene-lined,
have rising, turning stem

EVERYTHING FROM . . .

VALVES
FITTINGS
PIPE

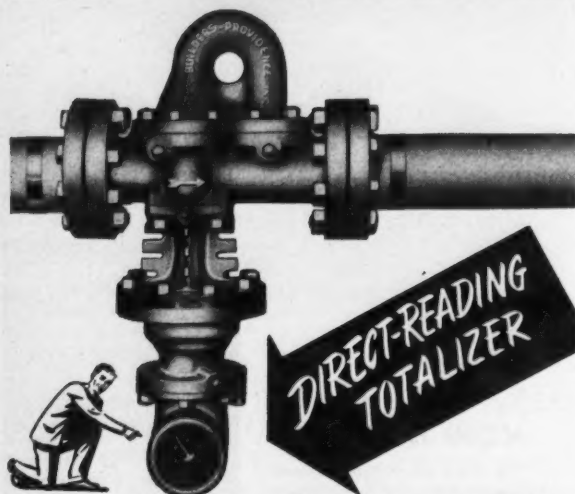
CRANE

PLUMBING
AND
HEATING

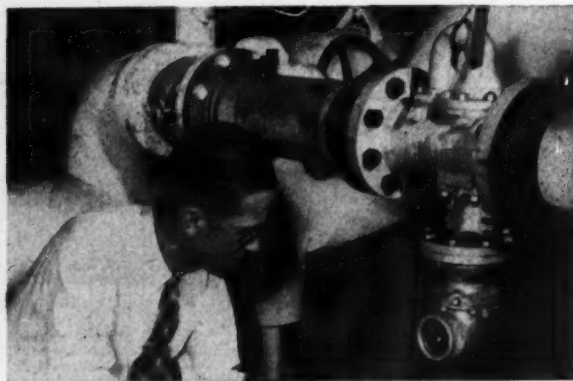
FOR EVERY PIPING SYSTEM

When inquiring check CP 5364 on handy form, pgs. 2-3

ANOTHER IMPORTANT FEATURE OF BUILDERS SHUNTFLO METER



You get the facts and nothing but the facts when you meter steam, air, or gas with BUILDERS SHUNTFLO METER. The totalizer dial shows exactly how many pounds of steam or cubic feet of air or gas have passed through the pipe line. There are no conversion factors, no complications, and no controversies — the direct-reading counter tells the story clearly and accurately. Simplicity of reading is another big reason why so many industries, public utilities, district heating plants, and commercial buildings have standardized on Shuntflo Meters. For engineering information and Bulletin 400-F1, address Builders-Providence, Inc. (Division of Builders Iron Foundry), Providence 1, R. I.



BUILDERS PRODUCTS

Flow Meters and Controllers . . . Mechanical and Differential
... for Liquids, Steam, Air, and Dry Materials.
Chlorinizers-Chlorine Gas Feeders.

BUILDERS-PROVIDENCE
Instruments

When inquiring check CP 5365 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Perform many chromatographic determinations simultaneously with 1 operator . . .

analyzer uses combination of ultraviolet-stimulated fluorescence, selective adsorption on silica gel

Uses: For all applications of ultraviolet radiation in conjunction with chromatographic techniques. Utilizes combination of ultraviolet-stimulated fluorescence and selective adsorption on silica gel, as employed in determining aromatics in hydrocarbon solutions.

Features: Several simultaneous determinations can be made by 1 operator. Twin ultraviolet sources can also be used in general applications of fluorescence effects.

Description: As illustrated, unit consists of power supply and controls in black base, supporting rods, light sources and adsorption tubes. Unit is 12" wide, 17½" long, and minimum of 34" high.

Power supply includes transformers and selenium rectifier. DC current eliminates eye fatigue by preventing flicker.

Several hours of operation cause only a few degrees rise in temperature; continuous operation is entirely feasible. Operates from 110 v, 60-cycle line.

Twin light sources, of the mercury-arc type, are independently adjustable by means of rheostats. Ultraviolet radiation peaks are at 3650 Angstroms; filters remove all but a trace of violet visible light. No eye protection is required as no short-wave light is emitted.

Separate 'ON-OFF' switches, combined with rheostats, are provided for each light source. Third switch controls power supply.

Adsorption tubes are 4 mm in diameter, 760 mm long. One end has enlarged section 50 mm long for ease of filling.

Source: Phillips Scientific Specialties Co., Dept. CP, Cranford, N. J. . . . or for more information check CP 5366 on handy form, pages 2 and 3.

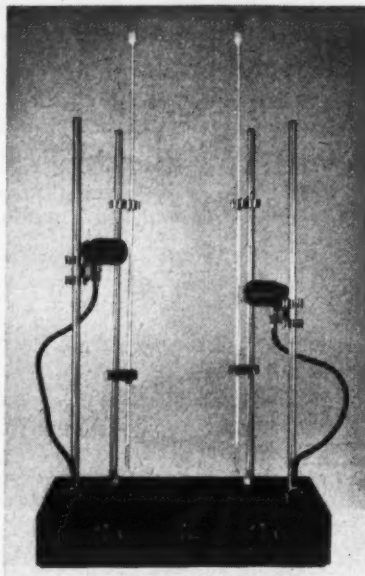
Rapid, accurate analyses of flue gas indicate efficiency of combustion . . .

analyzer gives continuous indications and records; maintains high accuracy with little maintenance

Uses: To provide rapid, accurate analyses of flue gas, and to give continuous indications and records of results.

Features: Conditioning of flue gas samples gives sustained accuracy of measurements.

Description: Analyzer operates on thermal-conduc-



Ultraviolet chromatographic analyzer

THERMOWELLS

Ground Joint Bar Stock Type



T-120 Series
TRINITY Ground Joint
Bar Stock Thermowell

- T-120 — 1" Ball Type Ground Joint
— 3/8" bore for #14 Gauge Thermocouples
 - T-121 — 1" Ball Type Ground Joint
— 13/64" bore for #20 Gauge Thermocouples
 - T-122 — 1¼" Ball Type Ground Joint
— 3/8" bore for #14 Gauge Thermocouples
 - T-123 — 1¼" Ball Type Ground Joint
— 13/64" bore for #20 Gauge Thermocouples
- Sizes: 8", 10", 12", 15", 18" and 24"
immersion length. Special orders up to 48"
(T-120, T-122 only).
Wall Thickness: 0.187" (T-120, T-122);
0.179" (T-121, T-123).

TRINITY manufactures all types of metal protecting wells for the primary detecting elements of all types of temperature indicating, recording and controlling instruments for a wide range of industrial applications.

SEND FOR your copy of new
illustrated TRINITY catalog.

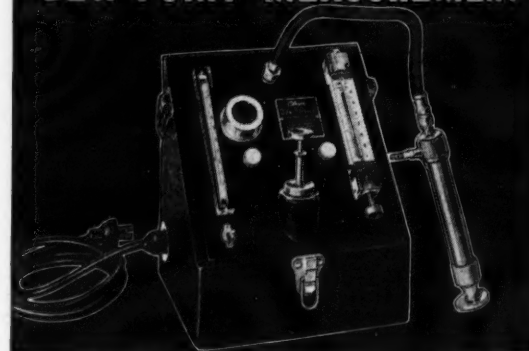
TRINITY

**TRINITY EQUIPMENT
CORPORATION**

500 Westfield Ave. East, Roselle Park, N.J.
THERMOWELLS and Other Specialties for the Process Industries

When inquiring check CP 5367 on handy form, pgs. 2-3

FASTEST, MOST ACCURATE DEW POINT MEASUREMENT



with the ALNOR Dewpointer!

EXCLUSIVE
ALNOR
ADVANTAGES

- No external coolant required! True portability and convenience.
- Dew or fog is observed suspended in air—not on a polished surface! Two or more observers get same accurate results!
- Greater speed in measurement!
- Greater accuracy at all times!

Send for details and prices! Address Illinois Testing Laboratories, Inc.
Room 504, 420 N. La Salle St., Chicago 10, Ill.

Alnor

**PRECISION INSTRUMENTS
FOR EVERY INDUSTRY**

When inquiring check CP 5368 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESS INSTRUMENTATION

tivity principle. Gravity-type water aspirator scrubs and conditions flue gas samples. Aspirator controls moisture content and temperature, and at the same time removes corrosive sulfur dioxide and foreign matter.

Filaments are mounted on glass-insulated posts which are set in removable stainless-steel cover plate bolted to filament block. Filament block is precision milled from solid stainless-steel block of large mass.

Flow chain cabinet is suitable for wall mounting; its cell compartment is insulated and dust-tight, and has temperature thermostatically controlled. Unit is described in maker's Bulletin 1136-B.

Source: Davis Emergency Equipment Co., Inc., Dept. CP, 56 Halleck St., Newark 4, N. J. . . . or for more information check CP 5369 on handy form, pages 2 & 3.

Detect atmospheric contaminants in minute quantities . . .

analyzer measures any component of gas, liquids; suitable for process control

Uses: For measuring atmospheric contaminations and for process control. Among many atmospheric contaminants which the instrument accurately measures are: acetone, ammonia, butadiene, carbon dioxide, carbon monoxide, cyclopropane, methanol, vinyl chloride. May be used for measuring purity of various chemicals and simple or complex mixtures.

Features: Device has many uses in detecting minute as well as heavy concentrations of atmospheric contaminants. It may be made selective so as to measure one specific material in the presence of several others.

Description: Device is designated as "Lira" model, meaning "Luft-type Infra-red Analyzer." It operates upon established principle that most gases, vapors, and liquids will absorb infra-red light in a portion of the spectrum which is specific for each.

This instrument uses that phenomena to selectively detect any specific product in a simple or complex mixture. For example, it could be used to measure propane and butane in natural gas before and after passing through a natural gasoline plant. This would provide measurement of the recovery efficiency of the plant.

Originator of the fundamental principle used in this apparatus was Dr. Karl Luft of I. G. Farbenindustrie of Germany. Such instruments have been widely used in German synthetic rubber and petroleum industries since 1937.

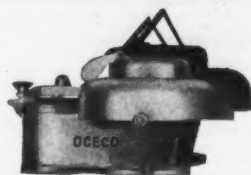
Source: MSA "Lira" Analyzer is available from Mine Safety Appliances Company, Dept. CP, Braddock, Meade & Thomas Sts., Pittsburgh, Pa. . . . or for more information check CP 5370 on handy form, pages 2 & 3.

Preparing a report? — Here's how

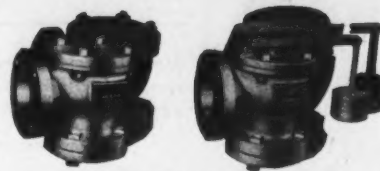
Reprints of the paper, "Essentials of A Good Report," are again available in 12-page booklet form. Literature briefly summarizes the reasons for writing reports and presents a step-by-step system for organizing and writing them.

Advice is given as to style of presentation, grammar, nomenclature, appendices, mathematical data, use of tables and illustrations, etc. Various types of reports are considered. Issued by Evans Research and Development Corporation, Dept. CP, 250 E. 43rd St., New York, N. Y. When inquiring specify CP 5371 on handy form, pages 2 and 3.

DECEMBER, 1949



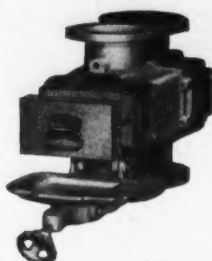
V-113 VENT VALVES control tank breathing, minimizing vapor losses and deterioration of product. High flow capacity, 2" to 12" sizes, ½ oz. to 8 oz. pressure or vacuum settings.



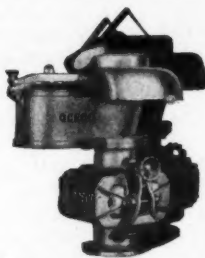
V-103 VACUUM RELIEF AND V-106 PRESSURE RELIEF VALVES are furnished in 3", 4" and 6" sizes. Vacuum settings from 1½ oz. to 1 lb. per sq. inch. Pressure settings from 2 lbs. to 30 lbs. per sq. inch. Working temperatures up to 600° F.



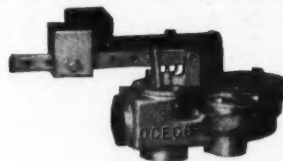
V-114 INTERNAL TANK VALVES are provided with a fusible link that melts when subjected to fire, closing the valve instantly, and cutting off the flow from the tank. 3", 4", 6", 8" and 10" sizes.



TYPE "E" FLAME ARRESTORS can withstand long exposure to fire. The "banks" have vertical straight through passages—minimizing entrainment and pressure drop, and are "extensible" for easy cleaning. 2" to 10" sizes.



TYPE "BE" VENT UNITS consist of a V-113 Vent Valve with snuffer, mounted on a Type "E" "Extensible" Bank Flame Arrestor. 2" to 10" sizes. Unsurpassed for efficiency and reliability.



V-109 STILL TYPE VALVES combine vacuum and pressure relief in a single valve. 3", 4" and 6" sizes. Pressure settings from 2 to 25 lbs. per sq. inch. Vacuum settings from 1 oz. to 10 oz. Temperatures up to 600° F.

OCECO FITTINGS

Prevent VAPOR AND FIRE Losses

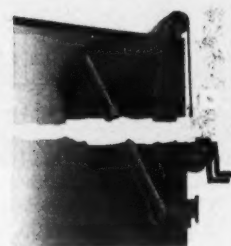
● Oceco Vents eliminate the free discharge of vaporized liquids. They control tank breathing resulting from temperature changes and pumping — protect the quality of the stored product — and prevent "blow-outs" and "cave-ins". Oceco Flame Arrestors are a positive flame stop — they prevent explosions and fires.

Specify Oceco Fittings *throughout* for *all* your tanks — and get proven, dependable, trouble-free protection for only a fraction of one per-cent of the value of the tank and its contents.

A few of the most popular Oceco fittings are illustrated and described briefly herewith. But send for the Oceco Data Sheets. They give full details and specifications, and complete listings of sizes, weights, dimensions, etc. Let the Oceco Engineers — pioneers in this work — help you equip your tanks for utmost safety and economy.



V-108 EMERGENCY PRESSURE RELIEF VENTS provide instant relief for excessive internal pressures, resulting from exposure fires, etc. Furnished in 6", 8", 10", 15¼" and 20¼" sizes.



SWING LINE EQUIPMENT — complete facilities including heavy duty tank nozzle; efficient double elbow swing joint; swing pipe; cable clamp; cable; sheave bracket and internal or external winch.



SEND FOR THE OCECO DATA SHEETS. Ask for sheets on the individual fittings in which you are most interested, or send for the complete set. **WRITE TODAY.**

Oceco Division

THE JOHNSTON & JENNINGS CO.

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ENGINEERING AND SALES REPRESENTATIVES IN THE PRINCIPAL CITIES

When inquiring check CP 5372 on handy form, pgs. 2-3

A Handful of Prevention



MICRO...
first name in
precision switches

**...this MICRO
Precision Switch
can help prevent disaster!**

One of the smallest explosion-proof switches listed by Underwriters' Laboratories, this MICRO precision switch has electrical capacity to meet requirements as a limit switch, safety switch, control switch and interlock.

Many thousands of these switches are in service in chemical plants, explosives and powder plants, petroleum refineries, grain elevators, distilleries ... wherever hazardous atmospheres may prevail.

Underwriters' Laboratories listed for hazardous atmospheres: Class I, Groups C and D; Class II, Groups F and G. This includes vapors of ethyl ether, gasoline, petroleum, alcohol, acetone, lacquer solvent, natural gas and atmospheres charged with grain or coal dust. Rated: 15 amperes, 125, 250, or 460 volts a-c.

For further information write to experienced MICRO SWITCH engineers at one of the addresses below.



BRANCH OFFICES: Chicago • New York • Boston • Cleveland • Los Angeles
SALES REPRESENTATIVES: Portland • St. Louis • Dallas • Toronto

When inquiring check CP 5373 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

No re-wiring needed to change from single-interval to repeat-cycle timing . . .

timer provides either single-interval, manually-started or 2-interval, repeat-cycle operation

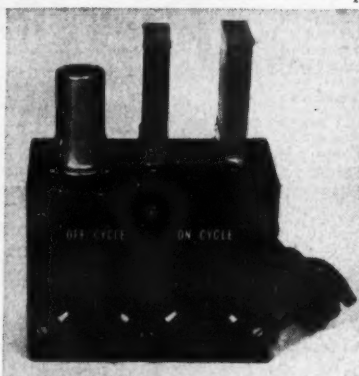
Uses: Can be used for single-interval timing with manual initiation, or as repeat cycle timer with 2 adjustable intervals.

Control of refluxing, timing of electroplating, valve pacing, temperature control, timing of bottle filling and control of heat sealing operations are among typical applications.

Features: No re-wiring is required to change from single-interval to repeat-cycle operation.

Description: First interval is adjustable from 1/2 to 3 seconds; second is adjustable from 9 to 20 seconds. First cycle is termed 'ON', second is named 'OFF', but these designations are simply means for differentiating between intervals, since relay contacts close at both intervals.

For single-interval operation, 'OFF' control is set at 0, and desired interval is obtained from 'ON' cycle. Provision is made for connection of push-button or other control for manual operation.



Timer for single-interval or repeat-cycle operation

To operate as repeat-cycle timer, 'OFF' cycle knob is rotated to desired interval, and the unit then operates continuously.

Timer operates from 110 to 125 v, 60-cycle outlets. Relay is SPDT, with contacts rated at 3 amps, 115 v. AC. Intervals are obtained by charging

of resistance-capacitance networks; only moving part is relay contactor. Chassis is 3 x 4 x 5".

Timer can be furnished with modifications of time intervals, contact ratings, etc. Housing is available for totally-enclosed unit.

Source: Known as Cyclo-Flex Timer, the unit is produced by G. C. Wilson & Co., Dept. CP, 2 N. Passaic Ave., Chatham, N. J. . . or for more information check CP 5374 on handy form, pages 2 and 3.

Apply uniform, reproducible films for reflectance, hiding-power, gloss and other tests . . .

automatic applicator covers paper charts, glass, or metal with films which vary less than 2%

Uses: Applies uniform films to glass, paper, metal, other surfaces. Films are reproducible, making instrument of particular value when making hiding power determinations in duplicate.

Useful for preparation for other tests on films, such as gloss measurements, drying rates, etc.

Features: Reflectance measurements, taken on 3-mil films applied over lacquer-coated chart having alternate black and white 2" squares, showed that maximum de-

Now...
**DIRECT READINGS
of dew point
without
lifting a finger**



**THE NEW
Foxboro Dew Point Recording System**

● Here is a newly-developed instrument especially suitable for moisture measurement or control in cabinets, dryers, dehydrators, air conditioning and similar equipment. It gives direct recordings of dew point from -20°F. to +160°F. at working temperatures from -20°F. to +200°F. Also permits readings in absolute or relative humidity when dry bulb temperature is known.

This new system is the only one of its kind. Requires no water connections or high velocity air-flow. Employs unique Dewcel bulb that neither adds nor removes atmospheric moisture, and can be installed directly in ducts or cabinets. Investigate Foxboro Dew Point Systems for your purposes. Write The Foxboro Company, 190 Neponset Ave., Foxboro, Mass., U.S.A.

FOXBORO

**HUMIDITY
INSTRUMENTS**

When inquiring check CP 5375 on handy form, pgs. 2-3

Depend on
AUTO-LITE
FOR TEMPERATURE INDICATION



Model G Thermometer (one-to-one ratio, liquid filled type) Priced from \$18.



Model V Thermometer (vapor pressure type) Priced from \$10.25.

Auto-Lite Indicating Thermometers are available in many types and sizes, with a choice of temperature ranges and mountings to meet your needs. Send for catalog.

THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION • TOLEDO 1, OHIO
NEW YORK CHICAGO SARNIA, ONTARIO

AUTO-LITE
INDICATING & RECORDING THERMOMETERS

When inquiring check CP 5376 on handy form, pgs. 2-3

Now available . . .

A Universal Monochromator



for use in the Ultraviolet, Visible, and Infrared

The new Perkin-Elmer Model 83 Universal Monochromator has *totally* reflecting optics that permit focusing in *visible* light for use in *any* region of the spectrum. And, a wide range of interchangeable prism materials, combined with high optical quality, assures optimum performance in any desired spectral range.


ACCESSORIES ALSO AVAILABLE

The Perkin-Elmer Model 83 Universal Monochromator is essentially the monochromator portion of the Perkin-Elmer Model 12 Infrared Spectrometer. Many of the Model 12 accessories are, therefore, available for use with the Model 83.

THE PERKIN-ELMER CORPORATION, Glenbrook, Conn.

Leading manufacturers of Infrared Spectrometers, Continuous Infrared Analyzer, Universal Monochromator, Flame Photometer, Tiselius Electrophoresis Apparatus, D. C. Amplifiers, and other electro-optical instruments for analysis and research.

When inquiring check CP 5377 on handy form, pgs. 2-3



LABORATORY CABINETS

PRECISION CONTROL of TEMPERATURE and HUMIDITY

PAYS OFF in QUALITY and UNIFORMITY of PRODUCT

Just a turn of the dial produces any weather or testing condition from room up to 140° F and up to 95% relative humidity. Cooling equipment can be supplied for special applications at additional cost. Its all-electric automatic operation speeds up testing and sampling for instant control of quality and uniformity. Super-sensitive sealed-in controllers maintain the selected conditions within 1-1/2°. Used by leaders in electric, electronic, chemical, pharmaceutical, food, paint, medical and auto industries.



- ★ Testing Electric and Electronic Units. Simulating tropical weather conditions.
- ★ Checking moisture absorption, package testing weathering and breakdown tests.
- ★ Testing plastics, fabrics, metals, woods, etc.
- ★ Incubation, germination, bacterial culture development, fermentation, proofing, etc.

STAINLESS STEEL CONSTRUCTION

New LSC-16 has full 7 cu. ft. capacity. Entire inner cabinet, ducts, air conditioner, blower wheel, ni-chrome heating unit, steam generator, water feeder, shelf hangers, door liners, etc., are made of heavy gauge stainless steel. Heavy moulded rubber gasket around doors for a perfect seal. Controlled, conditioned air is uniformly circulated to every shelf, from top to bottom of cabinet. Write stating your requirements, the operating ranges, etc., and our engineering department will gladly submit specifications.

ANETSBERGER BROS., INC.
188 N. ANETS DR. NORTHBROOK, ILL.

When inquiring check CP 5378 on handy form, pgs. 2-3

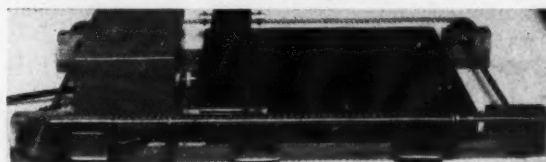
DECEMBER, 1949

PROCESS INSTRUMENTATION

variation from average thickness was less than plus or minus 2%.

Description: All-steel Bird vacuum plate, which measures 9 x 12" and which contains 75 3/32" holes, is the essential part of the device. When a vacuum line from a vacuum pump or a sink aspirator is connected to vacuum plate, the paper hiding-power chart or glass or metal plate is held firmly in position.

As illustrated, sprocket shafts, powered by small gear motor located under hood, carry ladder chains which



Shows automatic film applicator in position at start of test; holes in vacuum plate are visible

draw weighted holder over surface to be covered. Applicator blade, either Boston-Bradley, Baker Applicator, or the Bird Blade, are placed in holder. When draw-down is completed, applicator holder strikes switch which breaks contact and stops blade. Applicator blades up to 9" long may be used.

Source: Henry A. Gardner Laboratory, Inc., Dept. CP, 4723 Elm St., Bethesda 14, Md. . . or for more information check CP 5379 on handy form, pages 2 and 3.

Accuracy of 0.25% Inherent in strain indicator . . .

self-balancing unit is calibrated to read directly in micro-inches of strain per inch

Uses: To translate impulses from resistance wire strain gauges into indications of strain.

Features: Unit is self-balancing, has adjusting knobs for gauge factor and for zero setting above the dial inside the case.

Description: Unit reads directly in micro-inches of strain per inch of strained surface. Can be used with one strain gauge or with many gauges connected to multi-point selector system.

Supplied in any one, any two or all three of the following ranges: 0 to 2000, 0 to 5000, 0 to 10,000 micro-inches of strain per inch of surface strained.

Accuracy is within plus or minus 0.25% of all ranges and is unaffected by normal variations in tube characteristics of the vacuum tubes or in the 110 v. AC power supply.

Source: SR-4 strain indicator is made by the Baldwin Locomotive Works, Dept. CP, Philadelphia 42, Pa. . . or for more information check CP 5380 on handy form, pages 2 and 3.



Strain indicator



Simple V
Stable V
Powerful V

...describes the
Domotor Assembly of Annin Domotor Valves

The field proven, Domotor Assembly is as simple as it is effective. It is the natural solution to efficient single seated valve operation. Many years of service in hundreds of installations have proved the dependability of the "O" ring sealed cylinder and piston combination—the basic motive element for the Annin Domotor Valve. Since there are no springs to compress in the Domotor Assembly, the entire effect of supply pressure is available for accurate and positive positioning of the single seated valve. This powerful, lightweight construction supplies increased operating forces, and at the same time provides a factor of stability not available in conventional diaphragm motors.

Maximum operating forces from the piston may be obtained in either direction or equally divided by simple adjustment of the loading regulator. The smooth acting positive positioner unit, an integral part of the Domotor Assembly and completely housed within the dome, assures positioning accuracy to within .001 inch anywhere in the piston stroke.

The Domotor Assembly requires no external adjustments. There are no links or levers to invite tampering, get out of adjustment, rust or corrode. This small, compact and easily assembled power unit minimizes problems of transportation, installation and maintenance.

The Domotor housing, piston plate and bottom plate are manufactured from an aircraft-type heat treated aluminum alloy. The cylinder surface is honed to a mirror-like finish, to within 5 micro inches. The entire unit is double Anodized for positive corrosion protection. The piston assembly floats on three "O" ring seals so that there is no metal-to-metal contact during operation. The "O" rings are paraffin impregnated during molding to insure life-time lubrication and eliminate any possibility of sticking.

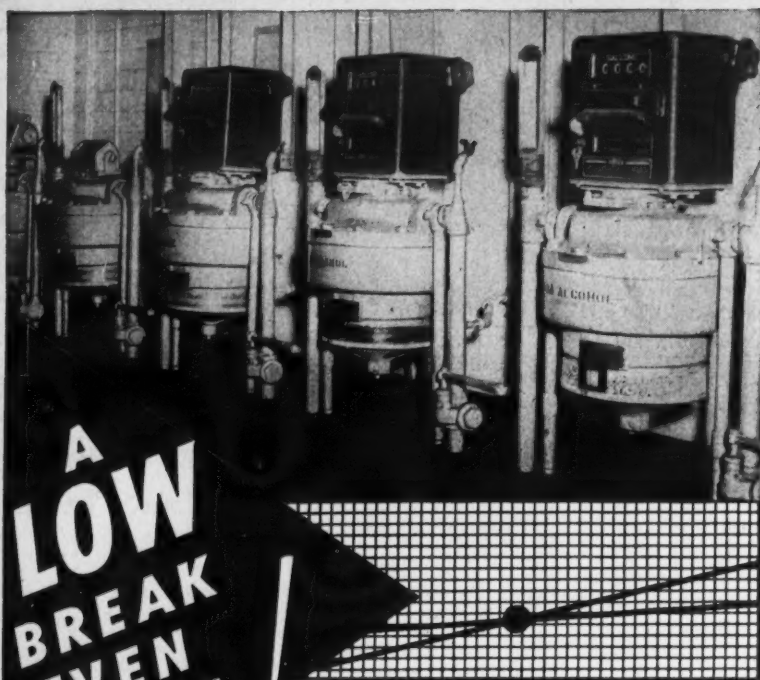
Write today for this bulletin.

A new bulletin showing installation and operating features of the Domotor Valve will be sent to you upon request.

THE ANNIN COMPANY
3500 Union Pacific Avenue
Los Angeles 23, California

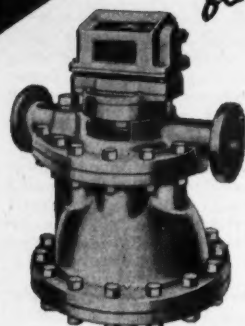


When inquiring check CP 5381 on handy form, pgs. 2-3

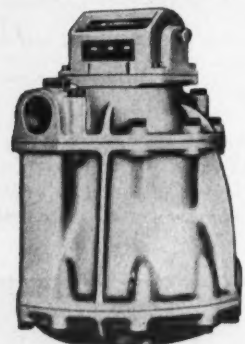


**A
LOW
BREAK
EVEN
POINT**

..... Is today's
BEST INSURANCE!
for **PROFITS (and Jobs)!**



Stainless Steel Xacto



**Xacto for Noncorrosive
Liquids**

Chemical plants of many types are using Bowser Xacto meters to cut their liquid handling costs. For example:

The photograph above shows Bowser Xactos in a large, widely known chemical plant. They enable two men to handle and account for several million gallons of commercial solvents, alkalis, alcohols and acids every year.

The large scale operations in this plant would be costly without its efficient storage and distribution system. The process is as simple as opening a valve—no gaging, no weighing. Accuracy as close as .01%.

★ ★ ★

Every Bowser product is designed to help industry do a better job . . . more economically. This is the essence of *lower break even points!*

Write today for bulletins on Bowser meters for chemical plants.

BOWSER, INC.
1325 Creighton Ave., Fort Wayne 2, Ind.

BOWSER
ESTABLISHED 1885

LIQUID CONTROL SPECIALISTS SINCE 1885

When inquiring check CP 5382 on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Check polarization errors in conductivity tests by changing frequency . . .

conductivity tester supplies either line frequency or 1000-cycle current to bridge

Uses: Conductivity measurements of all descriptions, such as checking waters for purity, carbonation, chlorination, other special characteristics; checking concentrations of electrolytes and other solutions; checking pH values of beverages and determining moisture content of solids. May be used to check and calibrate rheostats, potentiometers.

Features: Covers range from 0.2 to 2,500,000 ohms with effective scale length of 84". Accuracy is within plus or minus 1% over all but extreme ends of scale.

Description: Line-operated instruments provide bridge current at line frequency, also contain oscillator circuit which provides 1000-cycle current to bridge. Selector switch permits instantaneous changing from one bridge frequency to the other.



Conductivity bridge

This interchangeability not only permits selection of source frequency best suited to particular measurements, but provides quick and easy check on extent of polarization errors in the set-up.

Battery-operated models supply only 1000-cycle current to bridge. More complete information on these bridges is provided in maker's Catalog No. 16.

Source: Industrial Instruments, Inc., Dept. CP, 17 Pollack Ave., Jersey City 5, N. J. . . or for more information check CP 5383 on handy form, pages 2 and 3.

Detect and locate defects in welds, forgings, castings, machined parts . . .

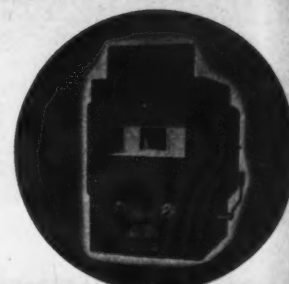
ultrasonic tester can be used on any metal; operator has control of sensitivity

Uses: To indicate presence and exact location of defects in forgings, castings, and machined parts such as shafts, axles, rolls, piston rods, bolts, studs, flanges. Welds in steel plate, pipe, containers and similar items can also be examined.

Features: Square-wave "inch markers" in horizontal axis of oscilloscope give definite indication of depth of defect in material being examined. 'Reject' control gives operator additional control of sensitivity by rejecting, if desired, indications of small defects.

Description: Unit operates by sending ultrasonic impulses through material being examined, and measuring distance which impulse covered before being reflected back to instrument. Impulses in sound material travel to opposite surface before being reflected, but defects in the material reflect the signal prematurely.

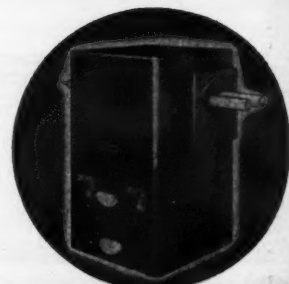
Instrument consists of pulse generator, searching unit, amplifier, cathode-ray tube, sweep generator and marker generator.



**BURRELL
BOX and MUFFLE
FURNACES**

HIGH TEMPERATURE "UNIT-PACK-AGE" ELECTRIC BOX and MUFFLE FURNACES for melting, sintering, heat treating, ignitions, etc.

Write for Bulletins 315 and 515.



**BURRELL
TUBE FURNACE**

HIGH TEMPERATURE "UNIT-PACK-AGE" ELECTRIC TUBE FURNACES for determination of carbon or sulfur by combustion and for experimental or production purposes.

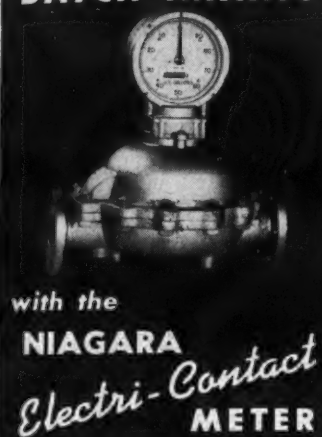
Write for bulletin 310.



When inquiring check CP 5384 on handy form, pgs. 2-3

Accurate, Automatic
Measurement of
Liquids in

BATCH MIXING



with the
NIAGARA
Electri-Contact
METER

Combining an electrical contact unit with the standard Niagara Meter for measuring liquid flow, the Niagara Electri-Contact Meter accurately regulates liquid volume for batch mixing. Automatic shut-off is accomplished by means of a solenoid actuated valve—a time-saving operation compared with the measuring-tank method.

Designed for use in the chemical, food and other industries, the Niagara Electri-Contact Meter is available in several models, covering a wide range of capacities. It is also available in stainless steel for metering chemicals.

Send Coupon for
complete data!

Please send me full information on use of your new Niagara Electri-Contact Meter for:

Liquid
Temp. °F. Pressure p.s.i.
Flow rate g.p.m.
Maximum Batch gals.
Company
By
Address

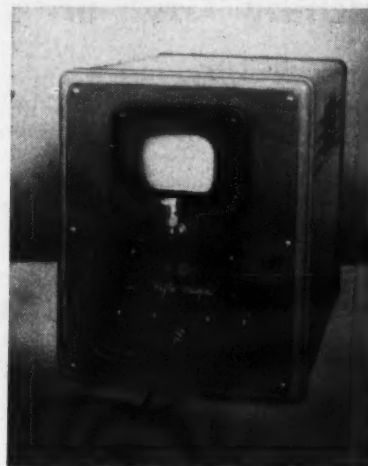
BUFFALO METER CO.

2892 MAIN STREET
BUFFALO, N. Y.

When inquiring check CP 5385
on handy form, pgs. 2-3

PROCESS INSTRUMENTATION

Pulse generator is used to generate short impulses of electrical energy at 0.5, 1.0, 2.25 or 5.0 MC as desired. This energy is transformed into ultrasonic impulses by the searching unit, or transducer, which also directs the ultrasonic energy through the material being studied. Reflected energy is converted by the searching unit into electrical energy and sent to amplifier.



Detects and locates defects in metal parts

Sweep generator draws signal across cathode-ray tube face at constant, measured speed. Position of reflected signal on the tube face is thus a measurement of depth of defect. Marker generator produces square-wave trace to facilitate measurement of distance.

Unit has recessed controls and carrying handles. Removable cover, which is held in place by 1 catch, contains space for carrying all searching units, cables.

Source: Sperry Products, Inc., Dept. CP, Danbury, Conn. . . . or for more information check CP 5386 on handy form, pages 2 and 3.

Accurate measurement of temps over 1400°C with platinum resistance thermometer . . .

units are fused in pure alumina at high temps; softening point is near 2000°C

Uses: To measure temperatures up to and over 1400°C.

Features: Platinum resistance thermometers are imbedded in pure alumina and fused at high temperatures; softening point is near 2000°C.

Description: Alumina does not contaminate platinum, is an excellent insulator even over 1400°C. Units have no unsupported windings at any point. In conventional protection tube they retain accuracy for long periods.

Thermometers are 4" long, have diam. of 0.259". Platinum lead stubs are provided. Standard resistances are 25.5 and 60 ohms.

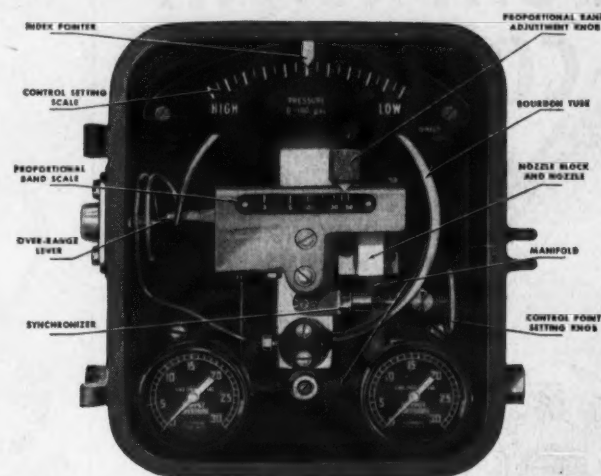
Source: Paul G. Weiller, Dept. CP, 95 Broad St., New York 4, N. Y. . . . or for more information check CP 5387 on handy form, pages 2 and 3.

Atomic energy documents for industrial use

Some 250 declassified documents of particular interest to industry are listed by United States Atomic Energy Commission in a 20-page bulletin, 750-A11430. A listing of all publications now for sale is also available: List No. 12. Issued by United States Atomic Energy Commission, Document Sales Agency, P. O. Box 62, Oak Ridge, Tenn.

Two Masoneilan Controllers

**That Provide Precise Control at Moderate Cost
In a Majority of Pressure Applications
In Many Temperature Applications**



The majority of industrial pressure control applications and many temperature applications can be satisfactorily handled by a simple pneumatic proportional controller with narrow-to-intermediate proportional band setting. Models 2700 Pressure and 3700 Temperature Controllers have been designed to meet these requirements at moderate cost without sacrifice of performance, precise proportional response or ease of adjustment.

The controllers are furnished with universal case or wall or panel mounting. A wide selection of pressure and temperature ranges is available.



No. 3700
Temperature Controller

NOTE THESE FEATURES...

1. Same basic control mechanisms for pressure and temperature instruments.
2. Pneumatic feedback — usually found only in more expensive proportional controllers . . . precise response.
3. Control point setting mechanism provides extreme accuracy of adjustment and easily read expanded index scale.
4. Proportional band adjustment between 3 and 50%.
5. Compact and sturdy case and internal mechanisms; all important internal parts of bronze, brass or 18-8 stainless steel.
6. Control action reversible with either bourdon or bellows.

MASONEILAN

MASON-NEILAN REGULATOR CO.

1203 ADAMS STREET, BOSTON 24, MASS., U. S. A.

Sales Offices or Distributors in the Following Cities:

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Boise • Albuquerque • Mason-Neilan Regulator Co., Ltd., Montreal and Toronto

When inquiring check CP 5388 on handy form, pgs. 2-3

EASILY HANDLED BY ONE MAN

LIGHTWEIGHT CONVEYOR

WORKS
EFFECTIVELY
UP TO 45° ANGLE
HANDLING BULK
MATERIALS



Rubber Belt Model

MODEL "S"

16-ft. model,
less power
\$199.00
fab, Orient

BELT
Handy-Handler
Conveyor

The Belt Handy-Handler Conveyor eliminates dozens of time-consuming hand operations in and around the plant. Slashes costs, speeds production. Don't let size fool you—the proof of the pudding is in performance. Handling capacities for stoker coal run up to 24 tons per hour operating at a 35° angle; sand and gravel, mash, salt and ores at comparable rates.

Both strength and lightness are combined in 61ST6 aluminum-alloy construction. Withstands severe abrasive and corrosive action. Spot-welded and high-strength aluminum riveted assembly. Comes in standard 16-ft. length or with 4-ft. midsection. Gasoline engine or electric motor for power. Sixteen-ft. rubber belt model weighs 90 lbs. without quick-detachable power unit.

Write today for folder and price list.



7404 STAHL RD.,
ORIENT, OHIO

HANDLING EQUIPMENT FOR FARM AND INDUSTRY

When inquiring check CP 5389 on handy form, pgs. 2-3

Pick Up 2300-lb. Load of Cases Without Pallets by Attaching Grab-arms to Lift Truck

Accessory permits handling products in paperboard cartons; companion device moves 1 to 4 drums at a time



Arms adjust to handle 1 — 4 drums

USES: Carton-grab arms enable 4000-lb capacity lift trucks to lift and move loads to 2310 lbs, rated at 24" load centers, without support of pallets. Will handle practically any products in paperboard cartons.

Similarly, other arms are easily attached for moving 1 to 4 drums at a time.

Features: Both accessories are quickly attached or exchanged. They open and close under hydraulic pressure and can be precisely controlled for safe, accurate handling and spotting of loads. One man with truck can quickly perform work that might require 2 or 3 workers if manual methods were employed.

Description: Carton-handling load-grab arms were previously available only on maker's 2000-lb capacity lift trucks, are now offered with 4000-lb units. Arms mount on sliding supports of standard load-grab attachment. Two steel plates, each 25" wide, 34½" high and ¾" thick, are mounted on each arm of the attachment.

Plate surfaces are abrasive-faced for non-slip retention. They squeeze together with just enough pressure to hold cartons securely as they are lifted. Each plate has an area of 825 sq. in. which, with the two-inch spread between plates, gives a total clamping area of 1,794 sq. ins.

Capacity of drum-handling arms is rated at 2,800 lbs at 23" load centers with regular load grab, and 2,380 lbs with revolving load grab. Drums may be lifted in either vertical or horizontal position by means of hydraulic side pressure. When installed on revolving grab, drums may be turned and dumped if desired.

Variance in drum diameters is no problem. This is



One man and truck have 48 cases of canned salmon

compensated for up to 1½" in the automatic action of the arms.

Additional optional equipment is available with both carton and drum attachments. There are pallet arms, spike-faced tines for wooden boxes, rubber-faced tines for gentle handling, and clamshell bucket of 7/16 cu. yd. capacity.

Source: Model No. 40 truck with carton, drum and other attachments is available from Hyster Co., Dept. CP, 2902 N. E. Clackamas St., Portland 8, Ore. . . . or for more information check CP 5390 on handy form, pages 2 and 3.

Tilt skip box mechanically while held in raised position . . .

hydraulic device attaches to fork truck to speed handling of heavy, loose parts in bulk

Uses: For use in lifting, moving and storing heavy loose parts and in delivering them to production lines.

Features: Dumps loaded skip box mechanically rather than by gravity. Effects great savings in labor costs.

Description: Hydraulic device tilts box while it is

held in elevated position. Three-sided tote box is fitted with metal rings at back. Special hooks on truck carriage engage these rings when box is lifted by forks.

To dump box, operator actuates double-acting hydraulic cylinder which raises hooks to tilt box forward, allowing load to flow out through open front of skip box.

Two sets of vertical coil springs which are compressed in the dumping action assist in returning box to horizontal position. Box is disengaged by simply lowering it to floor and backing the truck away from it. Illustration



Hydraulically-tilted box resumes level position when vertical coil springs are released

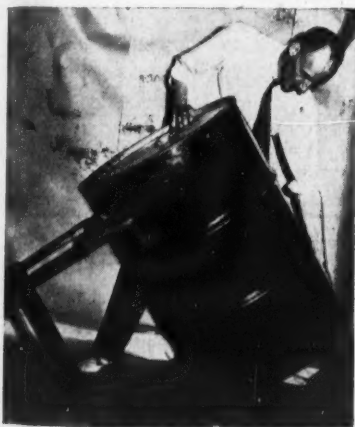
shows maker's Model LT-48 lift truck of 4000 lb capacity, with tilting device in operation.

Source: Skip box dumping device is a special development of Towmotor Corp., Dept. CP, 1226 East 152nd St., Cleveland, Ohio . . . or for more information check CP 5391 on handy form, pages 2 and 3.

Safety truck moves drums, tilts them easily to dispense contents . . .

fulcrum action at two points on straight rocker eases handling of loads up to 500 lbs

Uses: Permits one man to handle drums weighing up to 500 lbs.



Drum and truck tilt as one unit to horizontal draining position

Features: Drum stands upright alone. This enables operator to roll drums over safety catch on nosepiece of truck. Drum and truck are then tilted as one unit to horizontal draining position with little effort. Two-point fulcrum action contributes to safety.

Description: Constructed of high-grade angle

iron, electrically welded for maximum strength. Wheels are 3" diameter and are mounted on extra strong 1/2" diameter axles. Finish is red, rust-resistant enamel.

Source: Built by Morse Mfg. Co., Inc., Dept. CP, Syracuse, N. Y. . . . or for more information check CP 5392 on handy form, pages 2 and 3.



Sulphur to Saltwater

WITH MINIMUM HANDLING COST

Reclaiming sulphur stored at the inland mine—giving it a 10 mile barge ride—storing it again and then reloading it into ocean vessels . . . sounds like sky-high handling costs! Actually, handling is a very minor part of the on-ship cost of the sulphur . . . And that sums up the efficiency of the layout designed by Stephens-Adamson engineers, which is still going strong after 16 years.

This is a typical example of what happens whenever S-A engineers dig into bulk materials handling needs. For almost 50 years S-A designed and equipped systems have been reducing the cost of handling materials in bulk.

It's very likely that you have a materials handling job that S-A engineers can make more efficient—less costly. Just tell us you want a survey—at no obligation or cost to you. Write today!

FREEMPORT SULPHUR COMPANY Grande Ecaille, Louisiana

Two S-A traveling field conveyors operating over the sulphur rats deliver bulk sulphur to a 980-ft. S-A trunk belt conveyor. At barge loading an S-A shuttle conveyor loads into the barges for a 10 mile canal haul. At ship loading a gantry bridge crane unloads and stores the sulphur in piles. This same crane reclaims the sulphur and loads into a movable hopper which feeds a 482-foot S-A belt conveyor to the transfer house, where sulphur is either loaded into railroad cars or transferred to a 330-foot belt conveyor. This conveyor carries the sulphur to a boom type belt conveyor which loads the holds of ocean vessels.

STEPHENS-ADAMSON

11 Ridgeway Avenue, Aurora, Illinois MFG. CO. Los Angeles, Calif. • Belleville, Ontario

DESIGNERS AND MANUFACTURERS OF ALL TYPES OF BULK MATERIALS HANDLING EQUIPMENT

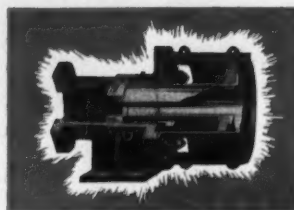
When inquiring check CP 5393 on handy form, pgs. 2-3



PACK THIS ADSCO EXPANSION JOINT UNDER FULL OPERATING PRESSURE

No "Down" Time; No
Costly Interruptions
To Service

The ADSCO Piston-Ring Type Expansion Joint can be completely re-packed *without* shutting off pressure or disturbing service. Eliminate expensive shut downs; cut operational time losses. Specify ADSCO for continuous, trouble-free operation.



Only ADSCO builds the Piston-Ring Type Expansion Joint. Only ADSCO gives you all these features:

1. Sliding surface of slip in contact with packing only—no metal-to-metal contact—no scoring of the slip.
2. Slip is completely guided, internally and externally.
3. Split external guide needs no extra space for removal.
4. Limit stops prevent over-travel—slip cannot be pulled out of body.
5. Packing is easily lubricated and its life prolonged indefinitely.
6. Available in a full range of sizes—for pressures to 400 psi and greater—and for temperatures to 750 F. and higher.

For complete information write for Bulletin C-35-15F.

EXPANSION JOINTS — HEAT EXCHANGERS
STREAM TRAPS — STRAINERS — METERS
CASING — ANCHORS — GUIDES

Leaders
Since
1877

AMERICAN DISTRICT STEAM CO.
NORTH TONAWANDA, N. Y.

When inquiring check CP 5394 on handy form, pgs. 2-3

Page 50

MATERIAL HANDLING

**Move material between plants
with 2000-lb capacity
gas fork trucks . . .**

automobile-type transmission and driving controls assure easy, precise operation at 6½ mph

Uses: For interplant material handling involving loads up to 2000 lbs. Especially suited for outdoor service.

Features: Transmission and driving controls are similar to those of an automobile. Compact and easily maneuvered. Driver's seat is positioned so that he can see tips of load forks entering load pallets. Various units of lifting system are so located that each can be serviced without dismantling other elements.

Description:

Truck is powered by a 17-hp air-cooled engine with electric generator and starter. Lifting-lowering and tilting mechanisms are controlled by two levers located on the cowl at the right of steering column.

Truck's overall length, including 30" fork, is 102"; width is 32½", height with up-rights telescoped is 83½", extended is 139". Maximum lift is 121½". Total weight is 3900 lbs. Travel speed with 2000-lb capacity load is 6½ mph; lift speed of load is 31 fpm; lowering speed is 35 fpm.

Each of the two widely spaced cylinders for the low pressure (850 lbs) hydraulic lifting system is placed at opposite sides of the upright column, affording direct vision of load and travelway.

Hydraulic pump is V-belt-driven from gas engine. Double-pitch heavy roll chains are used in secondary extension lift. An automatic device in the hoist unit safeguards against overloading or obstruction interference with fork travel, either up or down.

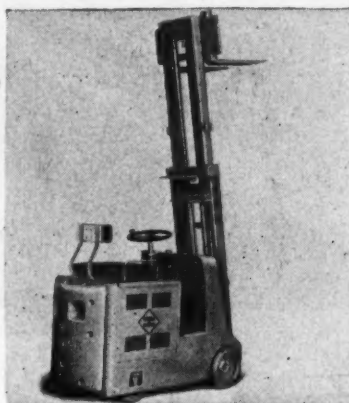
Frame is of heavy-gauge reinforced steel plates, electrically welded into rigid tank structure. Engine is completely shrouded. Front-wheel drive axle is in three-point suspension in truck frame; steering is by means of rear caster-type wheels. Clutch and brake are automobile-type and a ratchet lock on brake pedal insures safe parking on inclines.

Source: 2000-lb gas-powered fork lift truck is built by Elwell-Parker Electric Co., Dept. CP, 4205 St. Clair Ave., Cleveland, Ohio . . . or for more information check CP 5395 on handy form, pages 2 and 3.

**Table top cannot revolve,
elevate or lower when
held by lock . . .**

eliminates possibility of table being released by accident; lock operates by hand wheel

Uses: Locking device, as now embodied in this line



2000-lb capacity gas-powered
truck

THE *Standard* EXT-EN-D-O-V-E-Y-O-R

PORTABLE POWER-BELT CONVEYOR

Saves Time and Work — Loading — Unloading — Stacking — Unstacking

This compact, mobile, easily maneuverable power-belt conveyor unit extends to 46' in either direction and retracts to 9'10". Reaches into cars, trucks, trailers. Handles boxes, bags, bundles, cartons, crates, cases weighing up to 150 lbs. Available in two models—1 way stretch and 2 way stretch—and 4 sizes. Write for Extendoveyor Bulletin No. CP-129, Standard Conveyor Company, North St. Paul 9, Minn.

STANDARD CONVEYOR COMPANY
North St. Paul 9, Minn.

Roll to Location

Extend & Operate

Retract

Roll Away

Standard
GRAVITY & POWER
CONVEYORS

When inquiring check CP 5396 on handy form, pgs. 2-3

ONLY 20 SECONDS TO MOVE 2 TONS 55 FEET



with a Yale Worksaver Pallet Truck

- Handles more tonnage per day . . . faster, easier, safer.
- Reduces handling to a mere "stroll and steer" operation.
- Dual safety brake ideal for ramp work.
- Battery power for two days' operation without recharging.
- Capacities to 4,000 lbs. Other types to 6,000 lbs.

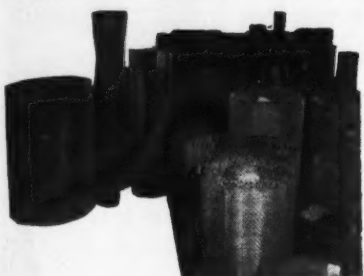
Write For Literature

YALE THE YALE & TOWNE MANUFACTURING CO.
Roosevelt Boulevard • Philadelphia 15, Pa.
HAND LIFT AND POWER TRUCKS • HAND AND ELECTRIC HOISTS • INDUSTRIAL DIAL SIGNALS

When inquiring check CP 5397 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

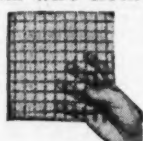
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**INDUSTRIAL WIRE
CLOTH OR SCREEN**
...from 4" opening to
20x250 mesh



Whether you need material for filtration, screening or fabrication, Cambridge offers you one complete source for any type of wire cloth or metallic screen. Skilled Cambridge craftsmen produce your material from any gauge metal or alloy, to the particular mesh or weave that best suits your requirements.



100 mesh He can offer you fast delivery on stock or specially woven items.



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FREE—ready reference book for the entire Cambridge line. Gives sizes, construction, mesh, weight, prices. Includes metallurgical and testing data. Write for free copy today.



Cambridge Wire Cloth Co.
Dept. F. Cambridge 12, Md.
trays · crates · screens
baskets · fixtures
OFFICES IN PRINCIPAL INDUSTRIAL CITIES

When inquiring check CP 5398 on handy form, pgs. 2-3

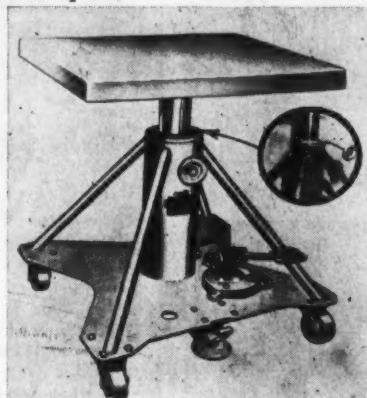
DECEMBER, 1949

MATERIAL HANDLING

of hydraulic elevating tables, secures top so that it cannot revolve, elevate or lower until it is released.

Features: Lock operates by a conveniently operated hand wheel.

Description: For reasons of safety it is often necessary that the heavy 2000-lb loads which this table can carry be locked in a certain position. Standard hand wheels, while allowing table to be locked in one position so that it will not turn, still allows table to be raised and lowered.



Lock holds table at any height

within 360°, as well as in any desired elevated position. Lock will hold table top at proper elevated height for any length of time.

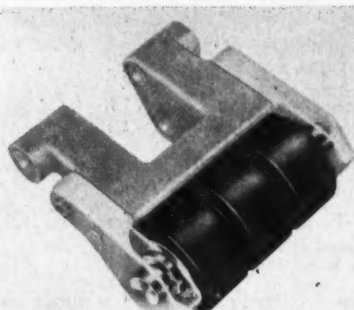
Source: Hydraulic table of 2000-lb capacity is built by Lyon Raymond Corp., Dept. CP, 6354 Madison St., Greene, N. Y. . . . or for more information check CP 5399 on handy form, pages 2 and 3.

Easily replace pallet-loader standard rollers with sturdy, low-cost rubber wheels . . .

provide long-wearing service; avoid gouging of floors on sharp turns

Uses: As a replacement for either fiber wheels or steel rollers on powered pallet-loaders.

Features: Eliminate gouging of floors on sharp turns. This is accomplished by a differential action obtained through a series of three independently rotating rubber-tired wheels. Each wheel is separated from others on the axle by oil impregnated, anti-friction thrust washers and revolves on heavy duty oilite bushings or, where applicable, on factory lubricated, sealed-for-life needle bearings.



Pallet loader replacement wheel

Description: Furnished as a complete, easy-to-install replacement kit. No special tools or fixtures are required. Wheels have shock-absorbing, non-binding, live rubber tread. Field tests indicate that tread life is comparable to that of steel rollers and many times that of fiber wheels.

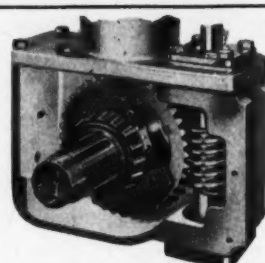
Source: Made by Aerol Co., Inc., Dept. CP, 2820 Ontario St., Burbank, Cal. . . . or for more information check CP 5400 on handy form, pages 2 and 3.

Cost-cutting with the HydroLectric K

... at the SPITZER
PAPER BOX CO.
Toledo, Ohio



**"WE ARE VERY WELL PLEASED
with the HYDROLECTRIC K Lift Truck"
... reports this user!**



**The Stuebing engineered
HydroLectric K has . . .
TRUE DIFFERENTIAL DRIVE**

Differential drive, with all gears and running parts sealed in lubricant, eliminates old-style chain drive, major source of breakdowns and repairs. Permits easier steering, saves on tire wear. Twin front drive wheels for greater stability ease of steering, better action.

Moving loads of 2000 to 4000 pounds, the HydroLectric K gets a "very high" efficiency rating from the Spitzer Paper Box Company, Toledo, Ohio. Downtime is insignificant, and little maintenance is required, reports the company. Time saved by the HydroLectric K frees one man per truck for productive work.

From plants throughout the land, the HydroLectric K gets an enthusiastic endorsement. Top management likes its low power costs, its minimum maintenance costs, its savings in time and money. The men on the job like its ease of operation that enables them to do a better job with far less effort.

Let Stuebing Engineers show you how the HydroLectric K will cut your own handling costs. Write for Bulletin H.

**LIFT TRUCKS
INCORPORATED**
2425 SPRING GROVE AVE. • CINCINNATI 14, OHIO

When inquiring check CP 5401 on handy form, pgs. 2-3

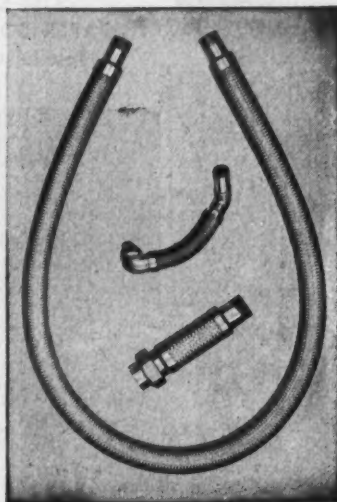
YOUR BEST BUY IS BY



CONVEYOR LINES

FOR CORROSIVE LIQUIDS & GASES

Bendix Seamless Flexible Bronze Metal Hose assures you greater flexibility—longer service life. In addition, it is engineered to your requirements in stainless steel, monel, SAE 1010 carbon steel and other special alloys.



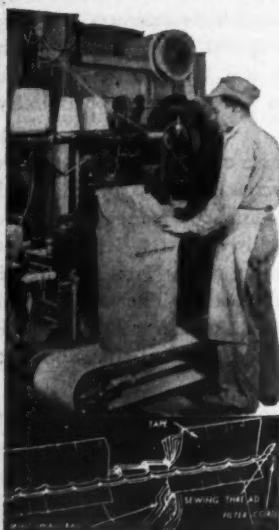
MADE BY ECLIPSE-PIONEER DIVISION

Bendix Aviation Corporation • Teterboro, N. J.

When inquiring check CP 5402 on handy form, pgs. 2-3

for greater security . . .

... the Union Special closure for Paper Bags



Here is the equipment for closing large size multi-wall paper bags: Union Special's Style 21800 H table type bag closing machine with Style 80600 H sewing head. Specially designed to produce a tight, durable, economical closure at high speed. The machine applies a paper tape binding, folds it over the top of the bag, automatically inserts a filter cord, and sews through the bag top in a smooth, continuous operation. For easy handling of bags, standard units are equipped with a five-foot, adjustable, power-driven conveyor. Ask for Bulletin No. 200.

Union Special
Machine Company
442 NORTH FRANKLIN STREET • CHICAGO, ILLINOIS

When inquiring check CP 5403 on handy form, pgs. 2-3

MATERIAL HANDLING

Truck's pusher mechanism removes unit loads from carrying plate . . .

plate held by locking device as fork truck attachment pushes load into position

Uses: For handling boxes, barrels, drums and other items in multiple units without cartons.

Features: System is most advantageous where large quantities of goods are stored and where products are customarily shipped unpalletized.

Description: System comprises 2 components: fork trucks equipped with pusher mechanisms, and 2 or 3 special steel plates per fork truck.



Locking device holds carrying plate as load is pushed into position

Plates are cut to size which best fits specific load to be handled. Legs about 4" high are secured to one end of plate. When loading plate, a block of wood is placed under other end to keep it level. Forks of truck slip under plate for lifting.

When unloading, forks of truck are tilted forward to rest front end of loaded plate next to front end of pile already unloaded. As pusher is extended, truck moves backwards. Locking device holds plate on forks and prevents it being pushed off with load. Plate is returned for loading, and truck picks up another loaded plate.

Source: Pak-Loader Fork Truck System is a development of Yale & Towne Mfg. Co., Philadelphia Div., Dept. CP, Roosevelt Blvd. & Haldeman Ave., Philadelphia 15, Pa. . . or for more information check CP 5404 on handy form, pages 2 and 3.

Loads of 600 lbs carried on 10' roller conveyor . . .

sections are joined without tools; when turned over handle items wider than conveyor frame

Uses: For rapid handling of packaged and unpackaged items, where load is within limit of 600 lbs in a 10' section.

Features: Sections are easily connected without use of tools. Rollers are so assembled in frame that on one side they are higher than frame, permitting handling of units wider than conveyor. When inverted, surface of rollers is below frame and frame thus acts as guard rail.

Description: Built in 12, 15, or 18" widths and in 5 and 10' straight lengths and 45 and 90° sections. Roller spacing can be 3, 4½, 6, 9 or 12" to meet requirements.

Frames are made of hot rolled 2 x 1 x 1/8" channels, with welded T-section cross members. Ball bearing rollers are made of 18 gauge steel with 2" diameter ball bearings mounted at each end of hardened steel axle.



"Recovered 3 TIMES Its Cost in 2 YEARS Use . . . No Repairs or Replacements"



Handling material through the air saves floor space for production.

*Unsolicited statement made by a Michigan User, about a Titan Hoist.

The Titan is a powerful little hoist built with Big hoist features including Cone Worm Drive, Electric Brake, and Steel Wire Hoisting Rope.

*You can get profits in the same way with Titan Hoists handling things in your plant.

Ask For BULLETIN 801A

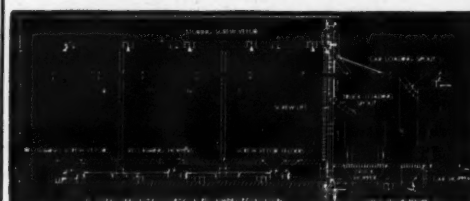
on the Titan Hoist, also Bulletin 695 on light overhead cranes.

THE DETROIT **Titan** ELECTRIC HOIST
manufactured by
DETROIT HOIST & MACHINE CO.
8215 Morrow St. • Detroit 11, Mich.

When inquiring check CP 5405 on handy form, pgs. 2-3

Note how "HAMMOND" Screw-Lift combined with Screw-Veyor

- ✓ ELEVATES
- ✓ DISTRIBUTES
- ✓ RECLAIMS
- ✓ RELOADS



Your problem may not parallel this, but the blue print portrays the versatility of a "HAMMOND" Screw-Lift, Screw-Veyor System.

Free-flowing bulk material encounters no contamination or exposure . . . traveling in a tube, there is no dust. Conveyor cannot whip or distort . . . patented stabilizer bearings keep everything in perfect alignment. Other features circumvent choking at the junction. Scientific loading opening permits exact loading, but no overloading.

You can use Screw-Lifts to elevate to any height and feed from any distance. Available in 6 types for capacities of 75, 300, 1000 or 2500 cu. ft. per hour. Tell us your needs.

Write for Forms M-500-2 and M-600-2

Screw Conveyor Corporation
430 HEDMAN ST. HAMMOND, IND. 46320
ESTABLISHED 1911 MANUFACTURERS

When inquiring check CP 5406 on handy form, pgs. 2-3

MATERIAL HANDLING

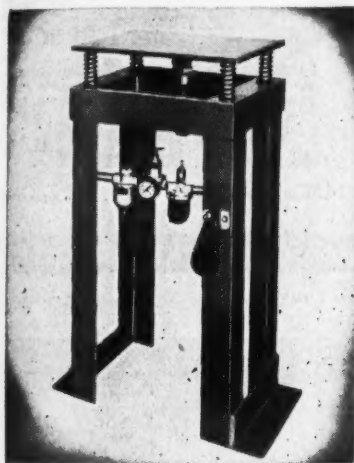
Source: "Speedtube" conveyors are built by Speedway Conveyors, Inc., Dept. CP, Buffalo, N. Y. . . . or for more information check CP 5407 on handy form, pages 2 and 3.

Air-powered vibrator table for packaging, settling operations . . .

vibrator mechanism is actuated by knee valves; has speeds to 1950 vibrations per minute

Uses: For operations requiring platform vibration, such as settling semi-thick liquids, packaging small parts and granular materials, settling molds, etc.

Features: Speeds to 1950 vibrations per minute are possible; vibration intensity can be varied by a pressure control regulator. Pneumatic-powered vibrating table has 12 x 18 x 1/2" solid steel platform; vibrating mechanism is actuated by a knee valve.



Pneumatic powered vibrating table

2-3
sion of vibration to the floor. Steel pins limit lateral movement of platform. Support for the vibration mechanism, platform, and air controls is provided by rigid angle-iron legs.

Standard equipment of model CVT-10 vibrating table consists of an air line filter, an air line lubricator, and a pressure control regulator. Special platforms and various types of screen can be furnished on request to facilitate specific handling operations.

Source: Product of The Cleveland Vibrator Co., Dept. CP, 2706 Clinton Ave., Cleveland 13, O. . . . or for more information check CP 5408 on handy form, pages 2 & 3.

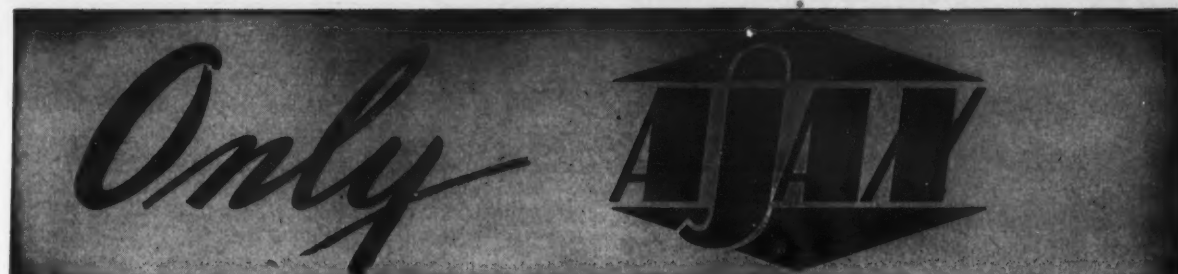
Outlines specifications for sewage pumps

Complete and detailed specifications of pumps for sewage lift stations, sewage treatment plants, sludge circulation or agitation, and sludge removal are contained in 32-page, 2-color bulletin.

Sectional views with parts lists and dimensional diagrams, as well as instructions for installing and operating, are included. Fully illustrated are vertical and horizontal solid-shell models, horizontal diagonally-split shell pumps, and self-priming horizontal pumps. Includes pumps for special liquors, sewage ejection, sludges, etc.

Bul. 964-E, issued by Buffalo Pumps, Inc., Dept. CP, Buffalo 5, N. Y. When inquiring specify CP 5409 on handy form, pages 2 and 3.

DECEMBER, 1949



LO-VEYORS

GIVE YOU ALL
THESE
COST-CUTTING
FEATURES



The exclusive Ajax design principles are responsible for the low maintenance cost and, in turn, low material handling costs.

1. 3 basic parts—the pan or tube . . . the vibrating or shaking mechanism . . . the motor, variable speed drive or other source of power to drive the shaker.
2. Completely self-contained, ready to use.
3. Completely enclosed drive unit with only 2 working parts.
4. Conveyor pan supported by flat springs mounted in rubber bushings,—no exposed bearings, no eccentric shafts, idler and tail pulleys.
5. Pan or tube can be made of ferrous or non-ferrous metal and can be lined or coated for protection against contamination.
6. Pans available with or without covers.
7. Tubular conveyors provide gas-tight construction for critical process and explosive operations.

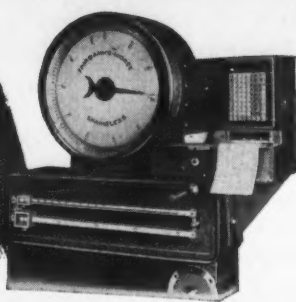
Write giving outline and sketch of your requirements for handling dry aggregates.

AJAX FLEXIBLE COUPLING CO. INC.
CONVEYOR AND SCREEN DIVISION • WESTFIELD, N. Y.

When inquiring check CP 5410 on handy form, pgs. 2-3

NOW

*You can
be sure*



ON WEIGHTS!

Fairbanks-Morse Printomatic Weighers eliminate the human element . . . stop profit-eating weighing errors. Just press a button and the weight is automatically recorded on a ticket or tape. It's the fastest, easiest, most accurate way to weigh. For all the facts, write . . . Fairbanks, Morse & Co., Chicago 5, Ill.

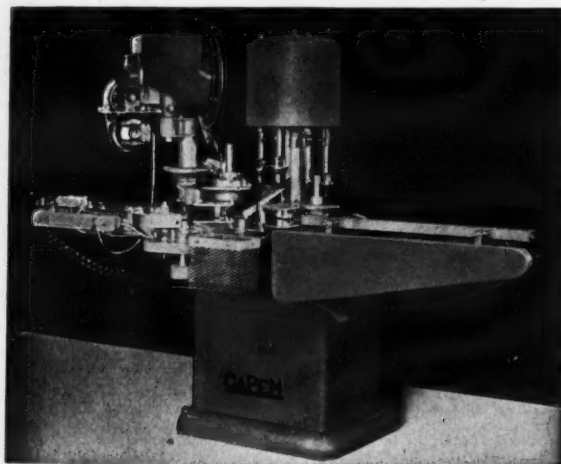


FAIRBANKS-MORSE

A name worth remembering

DIESEL LOCOMOTIVES • DIESEL ENGINES • STOKERS • SCALES • MOTORS • GENERATORS
RAILROAD MOTOR CARS and STANDPIPES • PUMPS • FARM EQUIPMENT • MAGNETOS

When inquiring check CP 5417 on handy form, pgs. 2-3



**CAPEM . . . APPLIES ANY
SCREW-CAP AT 2,000 TO 10,000
AN HOUR . . . DELIVERS A LEAK-
PROOF SEAL . . . AT LOW COST**

Available in 1, 2, 4, 6 and 8 spindle models

Write for prices

CONSOLIDATED PACKAGING MACHINERY CORP.
BUFFALO 13, N. Y.

When inquiring check CP 5418 on handy form, pgs. 2-3

DECEMBER, 1949

MATERIAL HANDLING

**Cold-forged casters have
forged-steel strength;
cost less . . .**

pressure moves metal to places
where wear is greatest

Uses: For applications where load capacities range between limits of 175 and 650 lbs.

Features: Provides industrial casters with forged steel strength which are manufactured at stamped steel production costs. Cold-forging employs pressures to compensate for lack of heat used in hot forgings, thus eliminating costs of heating and machining operations.

Description: In cold-forging top plate, yoke base and button of this new caster, tremendous pressure moves metal to points of greatest wear. Grain structure of steel is refined to increase wear resistance, lengthening service life.

Producer reports tests show treatment by cold-forging method insures longer life than that of non-flame-hardened hot-forged casters or stamped steel units.

Smooth, highly polished ball race finish closely resembling a ground surface is obtained, with contours of raceways fitting ball closely to give easy swiveling action and longer wear. As additional feature, a dust cap prevents dirt from entering raceways, provides a convenient means for lubrication.

Identified as Series No. 40, casters are being made in 5 wheel types: Micro-steel; Durastan plastic; molded-on rubber; cushion; hard rubber. Wheels are 3, 4, 5, 6" diameters. Casters in Series No. 40 are equipped with thread guards when desired.

Source: Rapids Standard Co., Inc., Dept. CP, Grand Rapids, Mich. . . . or for more information check CP 5419 on handy form, pages 2 and 3.

**Combine rotating with
straight shelving
to save steps**

Various combinations of straight and rotating steel shelving for systematic stock arrangement and fewer wasted steps are shown and described in a 4-page, 2-color circular.

How Rotabins save floor space and keep needed items always visible and accessible is shown. Folder J-213, issued by The Frick-Gallagher Mfg. Co., Dept. CP, 401 Shubert Bldg., Philadelphia 2, Pa. When inquiring, specify CP 5420 on handy form, pages 2 & 3.

**Wearing Parts Made
in Many Different Alloys
for Various Chemical Services**



MORRIS TYPE R SLURRY PUMP

WHETHER it's handling a slurry that is highly abrasive only — or one that is highly corrosive and corrosive — it is easy to get just what you need in a Morris Pump. The reason: Morris Type R wearing parts are furnished in various alloys, determined after long experience for particular services.

Here are a few typical examples of "just the right metal for the job"—

- ✓ Morris laboratory-controlled semi-steel. Economical metal for moderately abrasive solids.
- ✓ Three per cent nickel semi-steel or 3% nickel gray iron. For moderately concentrated caustic slurries.
- ✓ Ni-Resist, for more highly concentrated caustic slurries.
- ✓ Morris Flintmetal "S", a hard, straight, high chrome iron, brinelling between 600 and 700. For added corrosion and abrasion resistance to slurries containing traces of sulphuric and sulphurous acid.
- ✓ Carbon steel. For fine materials and high heads, or where an easily welded metal is desired.
- ✓ Various bronze alloys. For added corrosion resistance.
- ✓ Various stainless steel alloys. For extreme corrosion and abrasion resistance.
- ✓ Cast iron, rubber lined. Where operating conditions are right for this construction and when suitable rubber is available.

Handling both liquids and slurries of great variety by centrifugal pumps, has been the Morris specialty for 84 years. Write us for further information on materials, design specifications and operational data on pumps best suited to your particular needs. No charge or obligation.

MORRIS MACHINE WORKS, Baldwinville, N. Y.
Sales Offices in Principal Cities

MORRIS

CENTRIFUGAL PUMPS

When inquiring check CP 5421 on handy form, pgs. 2-3

Briefs . . . from contemporary publications

Here's a quick look at interesting articles appearing in other publications,
... as selected by Technical Editor, Harry McCormack



large or small VAN can make your Stainless processing equipment

- From a small three-quart patented stainless metal Regulube lubricator to this large stainless metal hydronamic inlet used in a paper making machine . . . 28 feet long . . . Van has fabricated all manner of equipment for the process industries.
- Van custom-makes equipment of stainless metals from 24 gauge sheet to 3/16" plate . . . makes vessels up to 90" diameter . . . holds tolerances to 1/16" on sheet metal . . . to .001" on machining.
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When inquiring check CP 5422 on handy form, pgs. 2-3

Page 56

Use of aluminum in the petroleum industry

Attention is called to the cost of corrosion in the petroleum industry and states how this charge can be minimized by use of aluminum and its alloys for certain construction purposes.

Properties of aluminum, such as weight, thermal and electrical characteristics and mechanical strength, are commented on.

Fire and corrosion resistance are also discussed. Specific uses are cited. Aluminum base points are covered in the discussion. Comparative costs are given. 10 pages, 13 photos. ("Petroleum Refiner", Oct., 1949, page 97)

Test fractionator performance while column is operating

Seven-page paper describes techniques used in a number of evaluations carried out on fractionating columns. These columns were an integral part of an operating unit and could not be released from service for test purposes.

Structural dimensions of column are tabulated. Analytical methods used in determining stream components are presented and discussed.

Results are tabulated. Calculations were made on product distribution, plate to plate distribution, vapor and liquid loadings. Explanations are given for calculations.

Article is illustrated with 4 tables and 11 figures. ("Chemical Engineering Progress", Oct., 1949, page 602)

Agricultural residue flours as extenders in phenolic glues

The evaluation of 13 flours, prepared from agricultural residues as extenders for phenolic resin glues for plywood, is reported in 3 1/2-page article.

Sources and preparation of flours are given. Glues used are identified; care used in determining amount of glue spread is detailed.

Discusses lamination and testing of plywood panels made with extended glues. Results are tabulated and include percent of glue saved by using an extender. Includes 1 table. ("Modern Plastics", October, 1949, page 111)

Gives mass-transfer data for liquid-liquid extraction

Liquid-liquid extraction is exemplified by the removal of acetone and acetaldehyde from vinyl acetate with water in a packed column.

Materials used are described as to chemical characteristics. Table of mutual solubilities is included. Experimental and calculated equilibria for the system at 20°C are compared through tabulated data.

Equipment and its operation are described. Maximum

operating rates (flooding) were determined for 2 variations of vinyl acetate and water. Data secured was used in computing mass-transfer coefficients.

Article includes 13 pages, 13 figures and 10 tables. ("Transaction Institution of Chemical Engineering", Vol. 24, '46, page 54)

Synthesis and recovery of hydrogen chloride gas

Theory and operation of a commercial plant for the production of 99.5+% hydrogen chloride gas are discussed in 3-page article, illustrated with 5 figures and 1 table.

Gas may be obtained by burning relatively impure materials, or as by-product from chlorination reactions.

Process is described and illustrated by flow sheet. Cooling high temperature gases from combustion furnace imposed problems, solutions of which are given. ("Industrial and Engineering Chemistry", Oct., 1949, page 2165)

Describes research programs in insecticide field

Review of 1949 season and evaluation of the current insecticide situation are presented in 2 1/2-page article.

Attention is called to shortages of certain materials during current season, states steps taken to relieve future shortages. Discusses research along certain lines which awaits field trials to consummate research.

Specific items such as DDT, benzene hexachloride and rotenone are commented on. ("Agricultural Chemicals", Sept., 1949, page 35)

Discusses successful methods of on-the-job training

Plan used to train power plant employees for greater efficiency is discussed in 4-page article.

States methods used in presenting subject matter to trainees. Some of the sound pictures used and some of the printed instructions and record cards are pictured.

Plan, with modifications, is applicable in any processing plant. Has been adopted by several other companies. Illustrated by 2 photos which show 16 slides and 2 cards. ("Power", Nov., 1949, page 74)

Solvent fractionation with immiscible solvents

Simplified mathematical approach for determining the effect of process variables on liquid-liquid fractionation is presented in 6-page article. Covers distribution of solutes between immiscible solvents, and subsequent fractionation.

Using a constant distribution coefficient, an equation is derived giving fractional recovery in terms of the number of plates above and below the feed, and the extraction

CHEMICAL PROCESSING Preview

factor. This approach was used in a problem involving fractionation of streptomycin and streptomycin B. Data are tabulated and used to make necessary deductions and calculations. 3 tables, 6 figures and bibliography. ("Chemical Engineering Progress", Sept., 1949, page 589)

Polymerizable materials for special purposes

Four-page article discusses number of polymerizable materials recently developed for specific purposes. As more is discovered about these materials, their applications will probably broaden.

Properties of several of these materials are tabulated. Advantages for specific purposes are enumerated. Special problems arising in the paper industry are cited and their solutions indicated.

Includes 5 tables and 7 figures. ("India Rubber World", Sept., 1949, page 702)

Cleaning, descaling by chemical circulation

Attention is called to advantages inherent in chemical circulation cleaning methods. Four-page article stresses economies accruing from operation of clean equipment in specific tasks.

Optimum state is reached when cost of utilities is balanced against clean-out expenses, maintenance, operating costs, and product realizations.

Suggestions are made on selection of cleaning material, setting up of the program, pumping and pumping pressures. Savings in certain operations are cited. Illustrated with 5 photos. ("Petroleum Refiner", Oct., 1949, page 121)

Data on adsorbents and vapor-phase adsorption

Typical vapor-phase adsorption plant is described in this 8-page article, illustrated with 12 figures including schematic drawing of plant.

Some equilibrium adsorption data for specific materials is given. Vapor-phase adsorption theories are presented with discussion. Various occurrences during an adsorption process are discussed in relation to specific theory.

Structure of adsorbents is presented as fully as data warrants. ("Transaction Institution of Chemical Engineering", Vol. 24, '46, page XIV)

Improvements open new fields for centrifuges

Extended uses of centrifuges are covered in 8-page article which tells how centrifuges are modified to be of use in many diverse fields. Brief comment is made on 18 types of centrifuge. Nine types of service performed by centrifuges are listed.

Article contains 4 photos, 2 tables and bibliography. ("Chemical Industries", Sept., 1949, page 357)

Practical advice on achieving adequate drainage

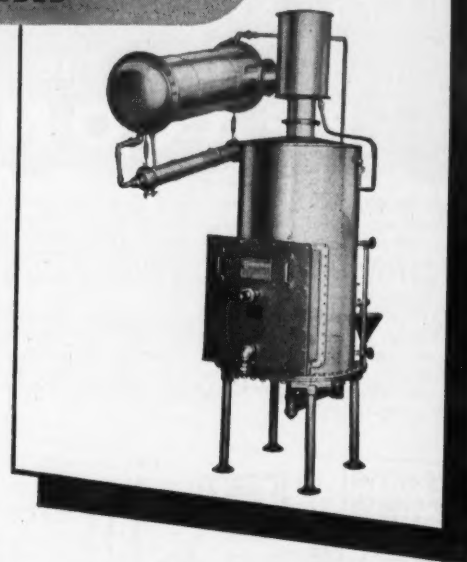
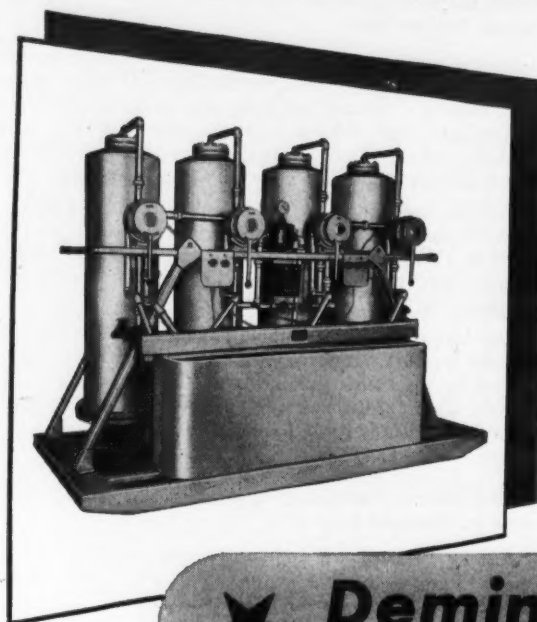
Practical tips on drains for piping systems are included in 4-page article, illustrated with 8 figures.

Many conditions which may arise are covered by specific examples. Actual practice has proven that adequate drainage is a safeguard, improves plant operations and is a profitable investment. ("Heating, Piping and Air Conditioning", Oct., 1949, page 76)

DECEMBER, 1949

Distilled Water

WHERE COMPLETE PURITY IS NEEDED



Demineralized Water

FOR MODERN MANUFACTURING PROCESSES

...both made with Barnstead Equipment

If your requirements for either distilled or demineralized water are from 1/2 to 1000 gallons per hour, you can best satisfy them with one of the 200 models and sizes in the complete Barnstead line. Whether it's demineralized water or distilled water, Barnstead's aim is to help produce purer water at lower cost with greater ease. Ask the Barnstead Engineer for the RIGHT answer to any pure water problem.

WRITE TODAY: For a Barnstead Pure Water Questionnaire, which lists the information we need to determine what Barnstead equipment you should have. There is no cost or obligation for this service.

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Describes in Detail

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and

DEMINERALIZED WATER

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When inquiring check CP 5423 on handy form, pgs. 2-3

Flashes from the BEACON

EVEN MORE THAN our two front teeth for Christmas this year we needed an idea. . . So when we wrote our BEACON staff letter to Santa we asked for a quick brain-flash on how to say "Merry Christmas" in the BEACON and make our big BEACON family know we meant it.

AND SANTA — as always — came through. The result? A different, deluxe edition of the BEACON you'll want for your permanent library. On softly tinted paper, from hand-set Centaur and Arrighi typefaces, we have lithographed the time-mellowed, gently roystering *Christmas Papers* of Washington Irving.



"That'll be twenty twenty."
a BEACON Original by Dave Hunt

WE PUBLISHED the *Christmas Papers* last year in a limited, bound edition, which found such favor we were sorry it was limited. David Hunt, known to most BEACON readers through his *Originals*, illustrated it with scratch-board pictures as full of Christmas-past atmosphere as a Currier & Ives print.

ALL BEACON "subscribers" will automatically receive this special edition as a Thank-you for welcoming us into their offices and homes all year.

BUT IF YOU'RE still outside the BEACON fold, we will give our brightest, best try to saving you a copy. The December edition will be a happy first issue to introduce us, if we haven't met. We're like everybody else, come those flurried close-to-Christmas days, though . . . and we simply can't give you our word and bond to fill last-minute requests. But, oh how we'll try!

PLANS ARE A-HATCHIN' already for 1950. The BS&B BEACON idea-hatcher is plugged in almost around the clock, and some of the ideas are getting so hot we're afraid they'll burst their shells before January 1. Incidentally, while we're still in the hatching stage, why don't you chip in with ideas for special material you'd like to see us do? We want the BEACON beam to flash both ways . . . to you and from you.

A REQUEST on your company letterhead will put you in line for each issue of the BS&B BEACON for 1950. Write to:

BLACK, SIVALLS & BRYSON, INC.
Industrial and Public Relations Division
Kemper Building, 720 Delaware
Kansas City 6, Missouri

When inquiring check CP 5424 on handy form, pgs. 2-3

Page 58

New Literature

Uses for soluble silicates given in booklet

Uses and properties of soluble silicates in powder, solution, and lump form are given in illustrated 15-page, pocket-size booklet. Silicates of soda and potash, and sodium metasilicate and sesquisilicate are described. Analyses covering chemical and physical properties, alkali-silica ratio, degrees Baume are given for 19 silicates.

Describes use in adhesives, soap builders, detergents, cements, sizes, and coatings. Tells of reaction with acids, sodium aluminate, and other materials to form base exchange gels, roofing granules, deflocculants and flotation reagents, etc.

Chart lists the advantages and properties of the particular silicate for each of the known uses. "Serving Industry", issued by the Philadelphia Quartz Co., Dept. CP, Public Ledger Bldg., Philadelphia 6, Pa. When inquiring specify CP 5425 on handy form, pages 2 and 3.

Band knives have scallop, wavy, straight edges

Band knives designed for fast, precision cutting of soft and fibrous materials including paper, cloth, sponge rubber, etc., are featured in 2-color folder.

Double and single bevel, and straight, wavy, and scallop edges are listed with dimensional data and prices.

Bul. 1015, issued by the L. S. Starrett Company, Dept. CP, Athol, Mass. When inquiring specify CP 5426 on handy form, pages 2 and 3.

Special dials are available for thermometers

Recording and dial indicating thermometers are illustrated in 4-page, 2-color catalog. Bulb specifications and dimensional data are included.

Four standard recording types (portable and stationary) with 24-hour and 7-day clock movements are discussed. Chart ranges for these types are tabulated.

Three basic models of dial indicating thermometers with liquid filled and vapor pressure actuated movements are described. Modifications of these models are clearly shown in diagrams; includes chart of standard dial ranges.

Four dial-type refrigeration thermometers are shown and discussed. Special graduated dials and trademark designs are available.

Form G143, issued by The Electric Auto-Lite Company, Instrument and Gauge Div., Dept. CP, Toledo 1, O. When inquiring specify CP 5427 on handy form, pages 2 and 3.

Resists severe abrasion even at 1800° F

Advantages of extreme resistance to abrasion, machinability in the annealed condition, and resistance to oxidation and wear at elevated temps are listed for special casting alloy. Table compares physical properties with those of other abrasion-resisting alloys.

Five case histories describe lasting-power of Thermalloy HC-250 in abrasive service where other alloys exhibited

high rates of wear. "How to Reduce Abrasive Wear", issued by Electro-Alloys Div., American Brake Shoe Co., Dept. CP, Elyria, O. When inquiring specify CP 5428 on handy form, pages 2 and 3.

Comprehensive manual covers rubber and plastics mills

An illustrated 40-page booklet on rubber and plastics mills includes a table of sizes, capacities, power requirements, overall dimensions, other data on standard mills; also general specifications, with details of various attachments; parts lists of single and twin mill units, keyed to assembly drawings; and more than 30 illustrations of various kinds of rubber and plastics mills, from smallest to largest sizes.

Illustrations of refiners, washers, crackers and other processing units are presented, also views and brief description of manufacturer's process-testing laboratory which is maintained for use of rubber and plastics manufacturers. Bul. 173, issued by Farrel-Birmingham Company, Inc., Dept. CP, Ansonia, Conn. When inquiring specify CP 5429 on handy form, pages 2 and 3.

18 pieces of lab furniture; typical lab layouts

Eighteen standard pieces of laboratory furniture, singly and in typical laboratory assemblies, are illustrated, described, in a 20-page booklet. A group of typical layouts for specific uses and restricted areas is included. Handy filing size.

Catalog B, issued by Fisher Scientific Co., Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. When inquiring specify CP 5430 on handy form, pages 2 and 3.

Describes, catalogs over 50 mercury switches

Mercury switches are treated in a 16-page, 2-color catalog. Two basic designs are shown and discussed; mercury-to-mercury and mercury-to-electrode. Includes magnetic mercury types.

Building of the switches is explained and shown in 6 photographs; applications are illustrated. Engineering data and selection of switches are given. Complete switch specifications are given.

Cat. 1343, issued by Minneapolis-Honeywell Regulator Co., Dept. CP, Wayne & Roberts Aves., Philadelphia, Pa. When inquiring specify CP 5431 on handy form, pages 2 and 3.

Pressures, vacuums, flows, etc. read by multi-channel unit

Multi-channel indicators providing electrically-transmitted intelligences to one focal point for reading gauge pressure, vacuum, differential pressure, force, flow, absolute pressure, etc., are described and illustrated in an 8-page bulletin. Indicators have 1, 2 or 3 scales, linear or square-root type.

They are said to eliminate need for special buildings, protective enclosures and costly piping, and combine 12 or more instruments in one. Specifications, features and operation are described.

CHEMICAL PROCESSING Preview

Applications include explosives, fatty acids, refineries, nucleonics, engine tests, etc. Other pressure instruments are described. Bul. R-20, issued by Automatic Temperature Control Co., Inc., Dept. CP, 5212 Pulaski Ave., Philadelphia 44, Pa. When inquiring specify CP 5432 on handy form, pages 2 and 3.

Describes lab thermometers, hydrometers

Laboratory thermometers and hydrometers are covered in 16-page catalog. Includes pictures and illustrations of Standard, ASTM and Extreme Precision etched-stem thermometers, and certified and API hydrometers.

Fahrenheit-Centigrade conversion tables are provided in catalog. Cat. 1100E, issued by C. J. Tagliabue Corp., Dept. CP, 614 Frelinghuysen Ave., Newark 5, N. J. When inquiring specify CP 5433 on handy form, pages 2 and 3.

Bellows expansion joints permit laying steam lines in tunnels

Application of packless bellows-type expansion joints and bellows adaptions to piping installations is described in 20-page manual and catalog. Tables, dimensional diagrams, and piping data are also included in the book section.

Seven series of expansion joints are described in the catalog section. Tells of space savings made possible. Method of adapting special bellows and fittings for special applications is discussed and illustrated. Cat. 50, issued by MagniLastic Division of Cook Electric Company, Dept. CP, 2700 Southport Ave., Chicago 14, Ill. When inquiring specify CP 5434 on handy form, pages 2 and 3.

Uses of clay in rubber, paper, adhesives and ceramics

Chapters covering applications of kaolin clay in the rubber, paper, insecticide, adhesive and ceramic industries are included in a 144-page manual. Containing 49 tables and more than 75 charts and photographs, "Kaolin Clays and Their Industrial Uses" is a comprehensive review of producing, refining, testing and using clay.

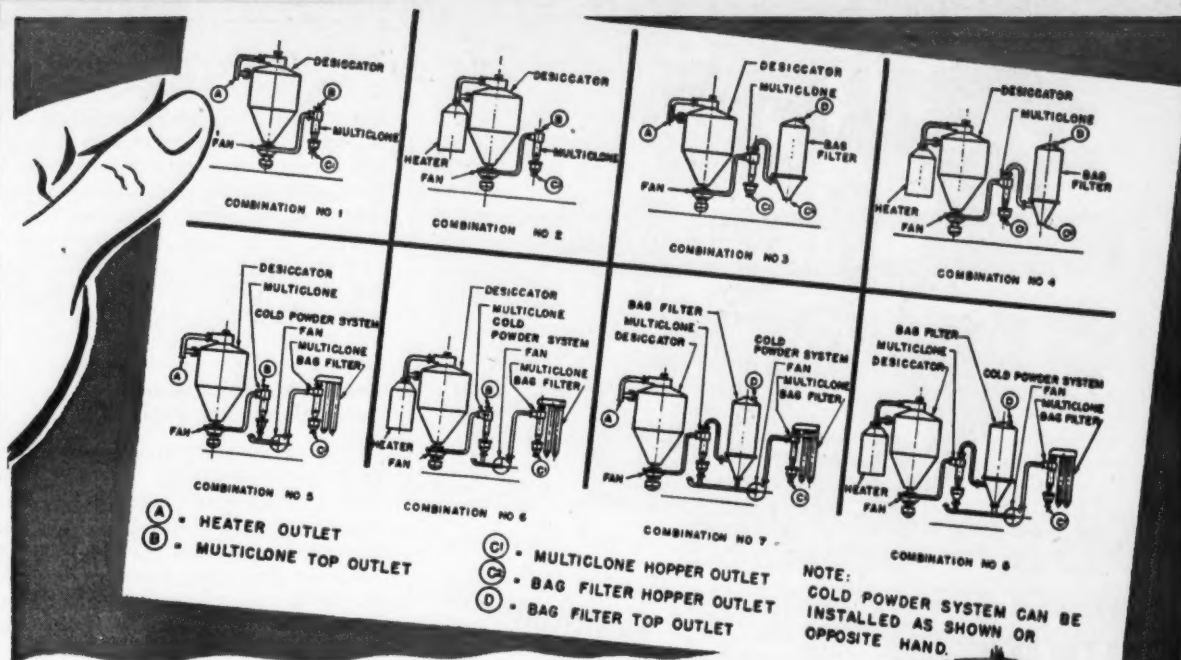
Tables on paper, for example, summarize effect of moisture and degree of comminution on brightness, effect of clay fineness on gloss, brightness and wax number, etc. Similar technical treatment is given for other uses of kaolin clays. Book is clothbound, approximately 6 x 9", and is available to industries using clay. Issued by J. M. Huber Corporation, Dept. CP, 342 Madison Ave., New York 17, N. Y. When inquiring, specify CP 5435 on handy form, pages 2 and 3.

Covers wide application of electronic principles

Literature discusses electronic devices ranging from intercommunication systems to television assemblies for observing processes where human observers are undesirable or endangered. Booklet has 16 pages, is printed in 2 colors.

Describes applications of paging systems, tells of use of movie projectors, discusses tape recorders. Electrical testing equipment, electronic counters, radio-frequency heaters, electronic plastic sealers, metal detector and electron microscopes are covered in similar manner.

Form 2S4979, issued by Radio Corp. of America, RCA Victor Div., Dept. CP, Camden, N. J. When inquiring specify CP 5436 on handy form, pages 2 and 3.



This may be the key to YOUR SPRAY DRYER PROBLEM

This helpful chart shows the wide versatility of
TURBULAIRE "Type N" Spray Dryer equipment

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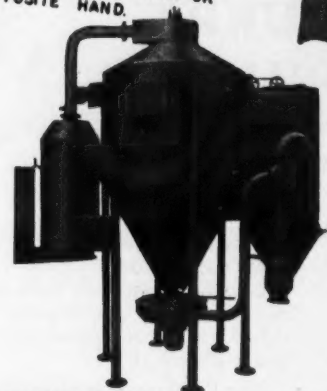
THE TURBULAIRE Type N is an entirely new concept in spray drying equipment—a drying chamber complete with collector for recovering the dried material, a heater and other optional equipment—all unitized into one compact, self-contained "package." The "Type N" is ideal for research and pilot plant investigations into the "dryability" of various products, as well as for small-scale production drying.

Perhaps you are wondering about the practicability of spray drying waste or by-products in your plant. Or your problem may be the development of production techniques for an entirely new product. For these and other similar applications the "Type N" TURBULAIRE permits quick, low-cost investigations under a wide range of equipment arrangements, a few of which are outlined in the sketches above.

Whatever your requirement, we urge you to investigate the possibilities of the TURBULAIRE Type N. It requires only a small space... has a capacity of 5 to 35 lbs. of water evaporation per hour... and handles both fluids and suspensions.



While the supply lasts we will gladly send you a copy of the above equipment sketches, together with a copy of this booklet describing the TURBULAIRE "Type N" in detail. Write today!



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Armour & Co.
Louisiana State University
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California Milk Products
Company
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Abbott Laboratories
The Glidden Company
Mead Johnson & Co.
Washington University,
St. Louis, Mo.
Parke Davis & Company
General Foods Corporation
Instituto de Pesquisas Tecnológicas,
Sao Paulo, Brazil
Lever Bros.
Hercules Powder Co.
Bakelite Corporation

WESTERN

Precipitation

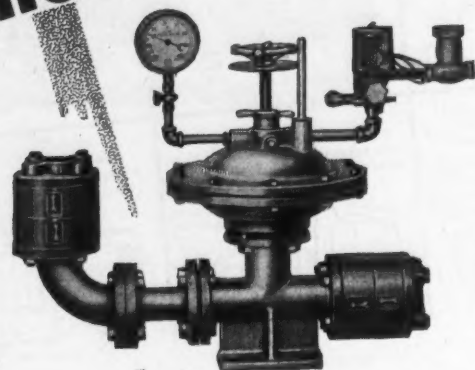
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When inquiring check CP 5437 on handy form, pgs. 2-3

HIGH in Versatility



**O.D.S.
DIAPHRAGM
SLURRY
PUMP**

LOW in Maintenance

This is the diaphragm slurry pump that is handling effectively such products as: aluminum hydrate, magnesium chloride, sodium tungstate, sodium sulphate, various metallurgical slurries; sugar, salt, organic and inorganic products; hydrochloric, sulphuric, phosphoric acids; cotton linters; and anti-biotic slurries.

The diaphragm is actuated in timed pulses by either air or gas pressure, by vacuum, or by a combination of both. It is designed to pump against heads up to 200 feet and to charge either by gravity or against lifts up to 15 feet.

Low maintenance features include: (1) no mechanical linkage to the diaphragm; (2) uniform force on diaphragm; (3) no holes punched in the diaphragm; (4) ample clearance in ball valves for passage of solid matter; (5) no motor, stuffing box, packing or high speed moving parts.

With several sizes from 1 to 3 inches, you can find in a single unit or battery the capacity required for your slurry pumping job. Write for Bulletin 309.

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When inquiring check CP 5438 on handy form, pgs. 2-3

NEW LITERATURE

Vol. 2 of "Colorimetric Methods of Analysis" is 950 pages

Vol. II of "Colorimetric Methods of Analysis" (inorganic) is a 950-page treatise. Contents include some turbidimetric and nephelometric methods. 68 chapters cover lead, thallium, arsenic, zinc, gold, iridium, silica, carbon monoxide, ozones, etc. 51 illustrations.

Authors, F. D. Snell and C. T. Snell. Remit \$12 direct to D. Van Nostrand Company, Inc., Dept. CP, 250 Fourth Ave., New York, N. Y. Or, when inquiring, specify CP 5439 on handy form, pages 2 and 3.

Requirements of product determine dryer design

Continuous conveyor drying systems are represented in an 8-page, 2-color catalog. Drying is defined; methods for accomplishing and factors affecting drying are covered.

Maker's approach to drying problems and research facilities available to customers are outlined in detail. Preforming feeds and dryer construction are discussed and illustrated in the continuous conveyor systems. Two case histories of drying problems which have been solved with continuous conveyor systems are included. Typical installations for 12 materials are discussed, with drying data included.

Other drying equipment is featured, including tray, laboratory, and truck dryers. Bul. 342, issued by Proctor & Schwartz, Inc., Dept. CP, 728 Tabor Rd., Philadelphia 20, Pa. When inquiring specify CP 5440 on handy form, pages 2 and 3.

Gives characteristic curves for centrifugal pumps

Complete line of centrifugal pumps is represented in 35-page, 2-color catalog. Impellers of these pumps can be selected from several types to best fit the job.

Photographs of installations, complete dimensional data with approximate weights, sectional diagrams and pump characteristic curves are included. Priming inductors are discussed. Materials of construction, applications, and design features are pointed out for each pump.

Cat. 4906, issued by Nagle Pumps, Dept. CP, Chicago Heights, Ill. When inquiring specify CP 5441 on handy form, pages 2 and 3.

Advice on handling adhesives for transparent films

Characteristics of all principal types of transparent films, including cellophane, pliofilm, polyethylene, and cellulose acetate, are described in chart-form in handy pocket-size booklet. Subject of handling adhesives for transparent films is thoroughly treated.

"How to Handle Adhesives for Transparent Films", issued by National Adhesives, Dept. CP, 270 Madison Ave., New York 16, N. Y. When inquiring specify CP 5442 on handy form, pages 2 and 3.

Machinery for pulp, paper and processing industries

Jacketed steel cylinder drying machinery and miscellaneous processing equipment are presented in this 24-page illustrated brochure. Descriptive information and large photo-

When Life's Too Short...



**ELECTRUNITE
STAINLESS STEEL TUBING
AND PIPE**

● Long service life is a primary advantage of Republic ELECTRUNITE Stainless Steel Tubing and Pipe that pays profitable dividends on your original investment.

Made of long-lasting Republic ENDURO Stainless Steel, these modern tubular products are highly resistant to heat and corrosion... are sanitary and non-contaminating... are easy to clean and easy to keep clean... require a minimum of maintenance expense.

For complete information about ELECTRUNITE Stainless Steel Tubing and Pipe, send today for a copy of Republic's free 28-page booklet which contains helpful tables of sizes, tolerances, corrosion-resistance values, and a complete section on the fabrication of stainless steel tubing and pipe.

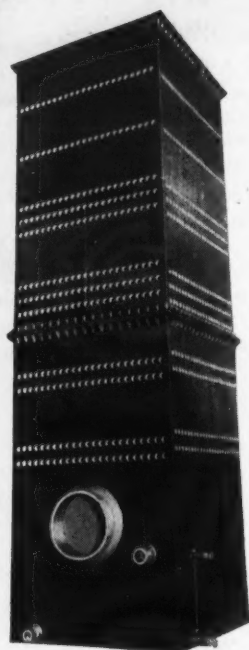
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STEEL AND TUBES DIVISION • CLEVELAND 8, OHIO
Export Dept.: Chrysler Bldg., New York 17, N.Y.



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STAINLESS STEEL TUBING AND PIPE

When inquiring check CP 5443 on handy form, pgs. 2-3

a TOWER of strength



CUTS PROCESS EQUIPMENT COSTS

Because HAVEG is so strong . . . so light in weight . . . it can cut the cost of huge towers like this. Used in handling corrosive acids, this cooler-absorber tower replaced a battery of smaller ones. Now efficiency of the entire operation is increased, and equipment costs are reduced.

If you need a material with high strength, toughness, durability plus 100% corrosion resistance, investigate HAVEG. This molded material is resistant to chemical action throughout its entire mass—not just on the surface. Large, structurally-strong equipment can be molded in one piece, at low cost, and delivered in from 1 to 8 weeks.

HA-5-49



When inquiring check CP 5444
on handy form, pgs. 2-3

DECEMBER, 1949

NEW LITERATURE

graphic illustrations of 4, 6 and 20-drier sections, also 8-drier vertical section, a Yankee drier section for production of machine-glazed papers, heating and cooling units, flaker, coating, and rotary press machines, and a roll press, are included.

Section on miscellaneous equipment includes jacketed mixer, ice flaker, beater tub, breaker beater roll, slab turner, positioner, pasteurizer units for bottled liquids, weldment straightening press. "Lukenweld Machinery," issued by Lukens Steel Company, Dept. CP, 465 Lukens Bldg., Coatesville, Pa. When inquiring specify CP 5445 on handy form, pages 2 and 3.

Diethyl phthalate plasticizer has 50 APHA color rating (max)

A low-color diethyl phthalate (DOP) with maximum APHA color rating of 50 is one of eight plasticizers presented in a two-color, 12-page plasticizer catalog. Of particular interest to plastic and protective-coating industries, it is now being produced in commercial lots in both a plastic and an electrical grade.

Specifications, properties, chemical formula, physical characteristics and applications are tabulated for each plasticizer. Two glyceryl esters and other phthalate plasticizers are included. 46 industrial chemicals are listed. "Plasticizers," issued by Tennessee Eastman Corporation, Dept. CP, 10 E. 40th St., New York 16, N. Y. When inquiring specify CP 5446 on handy form, pages 2 and 3.

Tells of German welding of thermoplastics

German wartime welding of thermoplastics is discussed in 128-page report. Includes description of gas welding of polyvinyl chloride and polyisobutylene; heated tool welding of polyvinyl chloride, and friction welding of polyvinyl chloride.

Complete descriptions of observations made at 21 leading German plants are included. Illustrations show plastic welded articles ranging from raincoats to ventilating ducts. Additional sections cover the literature and give instructions for welding of plexiglas.

PB 97852, "Welding Plastics in Germany" is available in both photostat and microfilm form. Remit \$16.25 for the photostats or \$5 for the microfilm direct to Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C., in the form of check or money order payable to Librarian of Congress.

Belt conveyors perform all handling tasks

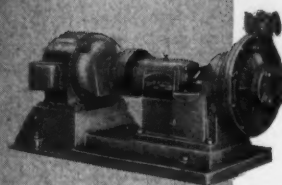
Belt conveyors of all descriptions, including 16 models for specialized service, are pictured and described in 32-page, 2-color bulletin. Good methods of selection are outlined. Many varied uses of belt conveyors are cited, pointing out almost unlimited functions which such units can perform.

Tells of permanently-sealed ball-bearing idlers which reduce maintenance. Discusses lattice, channel and timber frames, flat and troughed idler assemblies, many other construction details.

Bul. 1400, issued by Lippmann Engineering Works, Dept. CP, 4603 W. Mitchell St., Milwaukee 4, Wis. When inquiring specify CP 5447 on handy form, pages 2 and 3.

OLIVITE

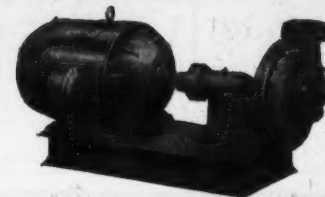
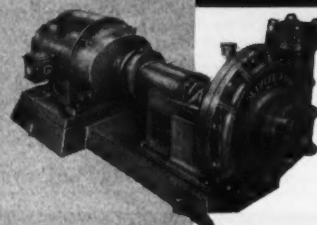
ACID-HANDLING



PUMP

Centrifugal Pumps—Combining High Efficiency

With Protection of Parts



If chemicals were like water, there would be little trouble pumping them in and around a process plant. But they aren't and the pump that is the best buy is one that combines effectiveness of pumping with effectiveness of protection. For this, we recommend our Olivite Acid-Handling Pump.

Hydraulically, it will stand up with the best of pumps. Chemically, it offers distinct advantages. Shaft and bearings are fully protected from the chemicals. Every inch of contact surface is protected by a durably bonded, special rubber highly resistant to practically all acids and to many chemicals, hot or cold.

The sales record of Olivite Pumps is one of "repeat orders." One large plant recently ordered 50 more Olivites to round out a total of about 150 units. Such a pump is likely to do a good job for you, too. Why not find out? Bulletin 308-R will give you the details. In writing for it, tell us about your problem.

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New York 18, N. Y.
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Factories: Oakland, Calif. • Hazelton, Pa. • Orillia, Canada • Melbourne, Australia.

When inquiring check CP 5448 on handy form, pgs. 2-3

SPEED OVEN SAVES TIME

- Quick Drying
- Quick Temperature Selection

The Dietert Speed Oven dries test samples of liquids, solids, fibers and precipitates twice as fast as a conventional laboratory oven by driving hot filtered air at high velocity through the drying chamber.

Selected temperature—190°F to 320°F—can be reached from a cold start in 2 minutes—and is maintained uniformly within 1%. Temperature change during operation can be made in a minute or less. Opening the door to load or unload does not change the temperature.

Drying cycles up to 30 minutes are controlled by an automatic built-in timer. Longer or continuous cycles are controlled manually.

Speedy, Sturdy, Durable, Reliable, Versatile, Compact—this oven is a money saving addition to any laboratory.

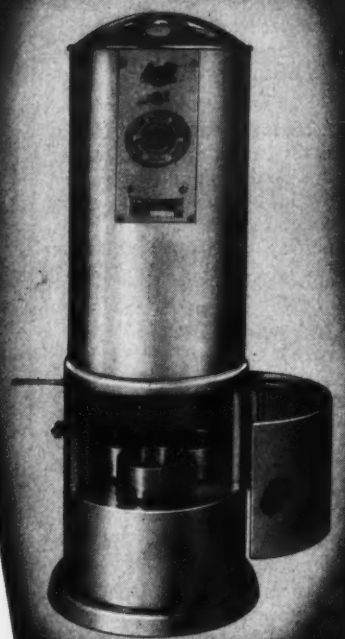
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HARRY W. Dietert COMPANY

4330 ROSELAWN AVE. • DETROIT 4, MICHIGAN

CONTROL EQUIPMENT
 SAND • MOLD • MOISTURE
 CARBON • SULFUR

When inquiring check CP 5449 on handy form, pgs. 2-3



NEW LITERATURE

Coating of resin enamel stops blinding of wire screens

Wire cloth for screening and dewatering of coke, stone, ore, sand, pulps, granular dry materials, etc., is discussed in 16-page, 2-color bulletin. Tells of enamel-coated wire which protects surface against moisture and averts oxidation. States that such cloth lasts more than 25 times as long as unprotected cloth in certain services.

Tables give wire diameters; compare round with square openings; give weights, open areas, wire size and recommendations for all cloths. Diagrams show methods of attaching screen cloth to decks of vibrating screens.

Bul. 113-A, issued by Hewitt-Robins Inc., Robins Conveyors Div., Dept. CP, 270 Passaic Ave., Passaic, N. J. When inquiring check CP 5451 on handy form, pages 2 and 3.

Detect, remove tramp iron from moving material

Separation of magnetic from non-magnetic materials by permanent magnetic and electro magnetic equipment is illustrated and treated in 8-page, 2-color catalog. Separators discussed are: pulleys, plates, traps for liquid lines, cross-belt type, etc.

Cat. C-5000A, issued by the Dings Magnetic Separator Company, Dept. CP, 4740 West Electric Ave., Milwaukee, Wis. When inquiring specify CP 5452 on handy form, pages 2 and 3.

Automatic measurement of CO₂ in flue gas

Importance of efficient furnace combustion, and how the Engelhard CO₂ Analyzer measures CO₂ content of flue gases to help keep air supply at optimum level, are topics of a 4-page illustrated bulletin. Literature explains how employment of thermal conductivity principle achieves efficient operation without outside circuits or mechanisms, assuring long accuracy with minimum maintenance.

Equally favorable operation with coal, oil or gaseous fuels is described. Single instrument indicates and records both proper air supply and temperature of stack gases. Bul. 710, issued by Charles Engelhard, Inc., Dept. CP, 850 Passaic Ave., East Newark, N. J. When inquiring specify CP 5453 on handy form, pages 2 and 3.

Casters and wheels fill 72-page catalog

Light, medium and heavy-duty casters, V-grooved wheel-casters for angle iron tracks, and wheels of various types, are shown and described in a 72-page catalog. Miscellaneous items such as threaded-stem casters are included.

Booklet is sectionalized by index tabs and fully indexed, both by industrial applications and caster numbers. Catalog 156, issued by Faultless Caster Corporation, Dept. CP, Evansville 7, Ind. When inquiring specify CP 5454 on handy form, pages 2 and 3.

Humidifiers offer solution to cost of dry air

Complete line of steam humidifiers, including 2 new air-controlled models, is featured in a 12-page, 2-color bulletin. Discusses dry air problems, giving tables on

CHEMICAL PROCESSING Preview

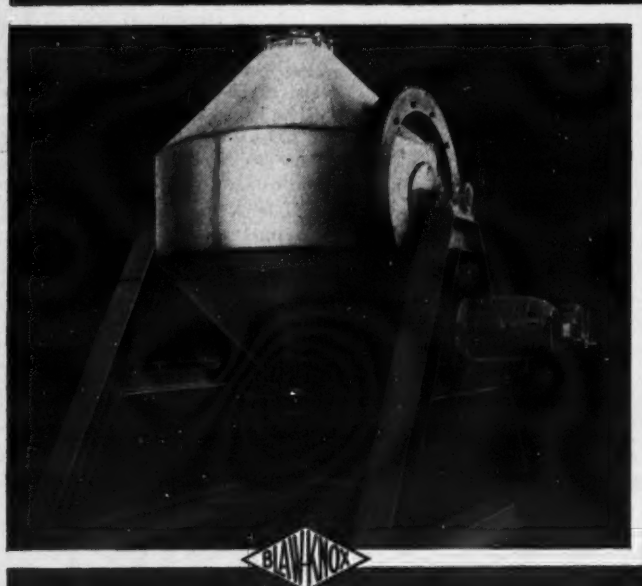
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**SIMPLE • FAST
EFFECTIVE**

MIXES GRANULAR AND POWDERED MATERIALS INTIMATELY, UNIFORMLY, AND QUICKLY. THE DOUBLE CONE SHAPE BLENDS WITHOUT SEGREGATION BY SIZE OR DENSITY.

Blaw-Knox Standard Tumbling Blenders are furnished in carbon steel and stainless clad steel.

Ask us about a test run of your materials in one of these blenders.



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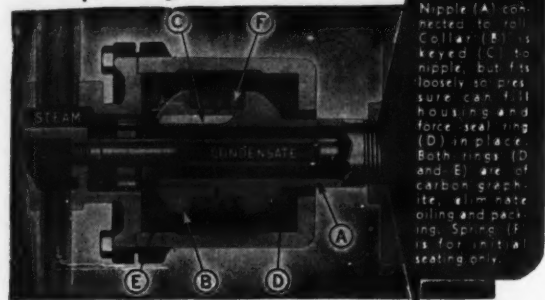
BLAW-KNOX DIVISION OF BLAW-KNOX COMPANY
2076 FARMERS BANK BLDG., PITTSBURGH 22, PA.

When inquiring check CP 5450 on handy form, pgs. 2-3

Help FOR YOUR STUFFING BOX PROBLEMS . . .

Getting steam or liquids into rotating machine parts used to mean a lot of trouble with stuffing boxes and steam fits. The Johnson Joint has changed all that. It's completely packless, self-oiling, self-adjusting and even self-aligning. Industry is finding new uses for it every day. Type B illustrated provides for condensate removal; other styles and sizes for all needs. Write for details.

THE JOHNSON CORPORATION
825 WOOD ST., THREE RIVERS, MICH.



JOHNSON Rotary Pressure JOINTS

When inquiring check CP 5455 on handy form, pgs. 2-3



"LIQUIDS WORTH STORING ARE WORTH MEASURING" WITH A **LIQUIDOMETER Tank Gauge**

WRITE FOR COMPLETE DETAILS

THE LIQUIDOMETER CORP.
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring check CP 5456 on handy form, pgs. 2-3

DECEMBER, 1949

NEW LITERATURE

desirable humidities and regain of moisture of hygroscopic materials.

Complete data on the operation and installation of humidifiers, both electric and air-controlled models, is given. Air and solenoid operated valves for use in humidifier control are described. 40 figures and photographs and 7 tables are included. Tells how to select and install humidifiers.

Bulletin 1772, issued by Armstrong Machine Works, Dept. CP, Three Rivers, Mich. When inquiring specify CP 5456A on handy form, pages 2 and 3.

Research, production control with 1 grating spectrograph

Discussion of spectrochemical analyses, comments on the grating spectrograph and description of the modified Eagle mounting are contained in 12-page, 2-color bulletin.

Representation of the periodic chart shows which elements are highly sensitive, which have average sensitivity or relative insensitivity. Shows how almost all elements are easily detected or determined spectrographically.

Manufacturer's 1-meter and 3-meter grating spectrographs are described in detail, with many photos showing arrangement of parts. Points out that all operating adjustments can be made from 1 position. Bul. XXXII, issued by Baird Associates, Inc., Dept. CP, 33 University Rd., Cambridge 38, Mass. When inquiring specify CP 5456B on handy form, pages 2 and 3.

Electronic supplies for research, production

Electronic equipment and supplies are thoroughly covered in 196-page catalog. Includes detailed listings of tubes, test instruments, voltage stabilizers, transformers, resistors, condensers, rheostats, relays, switches, rectifiers, tools, connectors, batteries, wire and cable, generator supplies, other items for maintenance, research and production requirements.

Gieger counters, complete address systems, disc, wire and tape recorders, photo-electric units and fluorescent lighting equipment are also discussed.

"Everything in Radio and Electronics", issued by Allied Radio Corp., Dept. CP, 833 W. Jackson Blvd., Chicago 7, Ill. When inquiring specify CP 5456C on handy form, pages 2 and 3.

Keeping scientific papers abreast of discoveries

A comprehensive review of problems involved in keeping informational techniques abreast of laboratory discoveries is available in a 723-page clothbound volume on proceedings of the Royal Society Scientific Information Conference, held last year in London. Methods of meeting the problem are reported, and systems in use are illustrated and commented on.

Through cooperative arrangement with the Royal Society, remittance of \$6 should be addressed direct to Office of Technical Services, US Dept. of Commerce, Washington 25, D.C. Specify PB 98072. Also available, for 80 cents, is PB 98072-S, 62 pages, "A List of Periodicals and Bulletins Containing Abstracts Published in Great Britain." Checks or money orders should be payable to Treasurer of US.

Put your high-vacuum requirements on a production line basis



The Eimac HV-1, oil-diffusion type vacuum pump, because of its construction features assures consistently dependable operation characteristics. When this high-efficiency pump is used with Eimac type A oil, an ultimate vacuum of 4×10^{-7} mm of mercury may be reached.

Rapid pumping speeds and simplicity of maintenance enable the HV-1 to produce more units-of-work during a period of time than conventional pumps of similar size. Write for complete technical data.

- ★ Clear Glass Pump Barrel
- ★ No Liquid Cooling
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- ★ No Mechanical Wear
- ★ Maintenance without Special Tools or Skill
- ★ Simple Pipe Flange Vac-System Connection

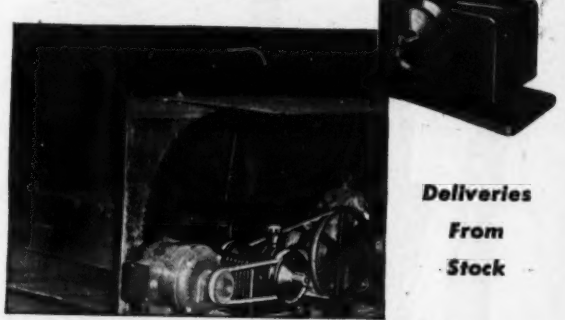
WRITE HV-1 VACUUM PUMP

EITEL-McCULLOUGH, INC.
2285 SAN MATEO AVENUE • SAN BRUNO, CALIFORNIA

When inquiring check CP 5457 on handy form, pgs. 2-3

LOVEJOY

"SELECT-O-SPEED"



Deliveries From Stock

For instant change to slow or fast. Photo shows "Select-O-Speed" used with speed reducer to rotate large parts slowly.

FINGER-TIP CONTROL

Scores of Applications! Change to desired speed while running. Infinitely variable over wide ratio, (up to 10:1 available). Sizes fractional to 1 h.p. Easily installed with old or new machines. Compact. Fully enclosed. Time Saving! Send for Catalog. Also shows Lovejoy Variable Speed Pulleys, fractional to 8 h.p. Wide V-Belts and Sheaves, Adjustable Motor Bases.

LOVEJOY FLEXIBLE COUPLING CO.

5072 W. Lake St. Chicago 44, Illinois
Mfr. Lovejoy Flexible Couplings, and Lovejoy Universal Joints.

When inquiring check CP 5458 on handy form, pgs. 2-3

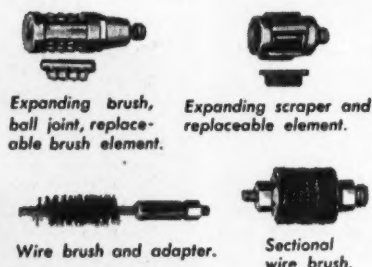
A QUICK ECONOMICAL way to clean small tubes

ROTOJET Junior Tube Cleaners offer advantages possessed by no other type. They are light in weight, fed easily with the hose, and shifted quickly from tube to tube.

The ROTOJET Motor is unusually powerful and efficient. It has only two moving parts, a shaft and a paddle. Positive contact, maintained between paddle and Rotohead (egg-shape) bore cylinder, assures an undivided air stream and freedom from power loss. An air valve permits one-man operation. Models for straight and curved tubes .495" I.D. up. Water-driven models for tubes .953" I.D. up.

ROTOJET size, speed, and ease of operation offer a marked contrast with external cleaners costing many times as much. Send for new bulletin.

Roto Heads are economical
Roto Heads meet practically every cleaning need. Expanding brushes and scrapers have inexpensive replaceable elements for economical operation.



ROTOJET Junior TUBE CLEANERS



ELLIOTT COMPANY-ROTO DIVISION

141 Sussex Avenue

Newark 1, N. J.

When inquiring check CP 5459 on handy form, pgs. 2-3

NEW LITERATURE

200 organic chemicals include 50 fluororganics

More than 200 organic chemicals are listed in a 14-page catalog. These include organic fluorides, chlorides, bromides and iodides. More than 50 fluororganics are available for chemical research.

Applications of suitable fluororganics include lubricants, solvents, heat transfer agents, insecticides, antiseptics, fire extinguishers, anesthetics, chemical, pharmaceutical and medicinal intermediates, plastics and polymers, refrigerants, dye intermediates, dielectric fluids and hydraulic fluids.

Catalog 7, issued by Halogen Chemicals Inc., Dept. CP, 616 King St., Columbia 5, S. C. When inquiring specify CP 5460 on handy form, pages 2 and 3.

Tabulates over 200 organic chemicals

Physical properties and applications of more than 200 synthetic organic chemicals are tabulated for easy reference in 16-page booklet.

Designed as a condensed guide for users of organic chemicals, Form 6136 is issued by the Carbide and Carbon Chemicals Corporation, Dept. CP, 30 East 42nd St., New York 17, N. Y. When inquiring specify CP 5461 on handy form, pages 2 and 3.

Skilled fabrication of any alloy

Specially fabricated equipment designed in wide variety of alloys is illustrated and described with in-service histories in 8-page, 2-color folder.

Depicts pickling, heat-treating, pulp and paper units, and custom-built equipment. Gives partial list of products. Outlines an engineering service for tailor-made products.

"Engineered Equipment", issued by Brown-Hutchinson Iron Works, Dept. CP, 1831 Clay at G.T.R.R., Detroit 11, Mich. When inquiring specify CP 5462 on handy form, pages 2 and 3.

Formulations, uses of herbicides

Advantages and methods of controlling weeds with chemical sprays in agriculture, industry, municipalities are subjects treated in integrated series of 7 booklets.

Instructions for formulating basic contact and translocated herbicidal chemicals are included. Gives proper com-

DEMING SELF-PRIMING Centrifugal Pumps

A new line! Quick, positive, automatic priming. Non-siphoning feature assures dependable re-priming. Write for new catalog BULLETIN NO. 3300-A.

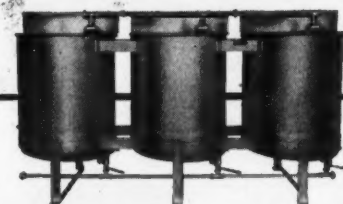


Fig. 3312 (below) has separate liquid end which can be furnished in special alloys for pumping corrosive liquids.

These new Deming Self-Priming Centrifugal Pumps are designed for general industrial use, sump or bilge pumping, irrigation or dewatering service and mine gathering. Capacities range from 10 to 300 gallons per minute against heads up to 250 feet. The line includes five models with electric motor and one portable unit with gasoline engine. Write for BULLETIN 3300-A.

THE DEMING CO. • 522 BROADWAY, SALEM, OHIO

When inquiring check CP 5463 on handy form, pgs. 2-3



LEE design and build a complete line of

• STAINLESS STEEL • PURE NICKEL • MONEL METAL

NOCOIL TANKS and MULTIPLE-TANK UNITS



Write for **FREE** Descriptive Bulletin

LEE METAL PRODUCTS CO., INC.
418 PINE STREET, PHILIPSBURG, PA.

All Lee Kettles are made to A.S.M.E. Code

When inquiring check CP 5464 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

NEW LITERATURE

pounds and rates of application for various uses.

Weed control on right-of-ways, in small grains, orchards and vineyards is dealt with in specific booklets.

Series of 7 booklets, issued by the Monsanto Chemical Company, Dept. CP, St. Louis 4, Mo. When inquiring specify CP 5467 on handy form, pages 2 and 3.

Measures viscosity or flow characteristics directly

Fully portable, self-contained viscometer is featured in illustrated 8-page catalog. Instrument is available in 4 models; reads directly in centipoises. Overall dimensions are approximately 12 x 12 x 6". Plugs into any standard outlet.

Both Newtonian and non-Newtonian materials can be measured. Characteristics of the latter can be evaluated.

"Brookfield Synchro-lectric Viscometer" is issued by the Brookfield Engineering Laboratories, Dept. CP, Stoughton, Mass. When inquiring specify CP 5468 on handy form, pages 2 and 3.

Develop 1000 psi with impeller pump

Opposed impeller pumps in 2- and 4-stage units are illustrated and described in 12-page, 3-color catalog. Pumps develop pressures to 1000 psi; are suitable for boiler feed, descaling sprays, pipeline use, etc.

Catalog contains cut-away diagrams of the 2- and 4-stage units, along with rating and dimension tables. Cat. 1550, issued by the De Laval Steam Turbine Company, Dept. CP, Trenton 2, N. J. When inquiring specify CP 5469 on handy form, pages 2 and 3.

Return condensate at high pressure

Two types of high pressure, high temperature condensate return systems are discussed in 24-page publication. Includes specifications.

Photographs, flow diagrams and installations illustrate 57 case histories and testimonials. All represent a savings in fuel, increased production, reduction in maintenance costs.

Includes a survey form with provision for sketch and details of condensate removal problem. Pub. 3250, issued by the Cochrane Corporation, Dept. CP, 17th St. & Allegheny Ave., Philadelphia 32, Pa. When inquiring specify CP 5470 on handy form, pages 2 and 3.

CHEMICAL BARGES



with Built-In Savings



One fabricator, one profit—a coordinated job from blue-prints to delivery. Such were the advantages that our customer, one of America's largest and most discriminating concerns, found in choosing Ingalls to build its fleet of four new chemical barges.

The 195 ft. barges were built at our Pascagoula, Miss., and Decatur, Ala., shipyards, while the high pressure tanks were fabricated simultaneously at our Birmingham and Pascagoula plants by our subsidiary, the Birmingham Tank Co.

Each barge has a carrying capacity of 234,000 gallons. The tanks may be mounted separately or made removable in the open hopper type barge. For coastwise service and for open water on the intercoastal canals, the tanks may be installed below deck in similar tank type barges.

Let Ingalls "build-in" the profits on your next tank, barge or plate work order. Quite often, economies result from joint use of our modern fabricating facilities that can be passed on to the customer. Write, wire or telephone for information.

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STAINLESS STEEL VESSELS • STORAGE AND PROCESSING TANKS
STRUCTURAL STEEL • BARGES — SINGLE AND INTEGRATED
TOWBOATS • WORKBOATS • REPAIRS • CONVERSIONS

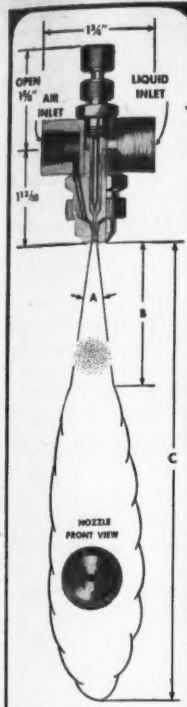
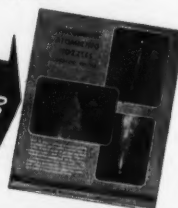
When inquiring check CP 5471 on handy form, pgs. 2-3

SPRAYING SYSTEMS

PNEUMATIC ATOMIZING NOZZLES

The most complete selection of pneumatic atomizing nozzles ever produced for industry is now available to you. Designed and manufactured by Spraying Systems Co., you can now obtain pneumatic atomizing nozzles to meet your needs exactly in capacity, spray type and spray characteristics. Catalog 23 gives complete information.

Write for
Catalog 23



TYPICAL
CATALOG 23
ILLUSTRATION

SPRAYING SYSTEMS CO.
Engineers and Manufacturers

3216 RANDOLPH ST. • BELLWOOD, ILL. (Suburb of Chicago)

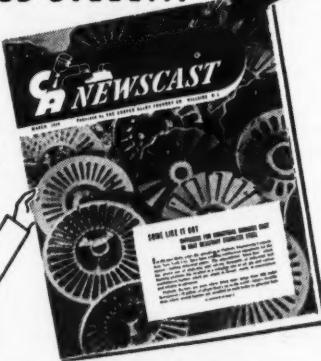
When inquiring check CP 5465 on handy form, pgs. 2-3

A NEW COOPER ALLOY SERVICE—

For Those Who
USE • DESIGN • SPECIFY
STAINLESS STEEL...

- VALVES
- FITTINGS
- CASTINGS

It's yours
for the
asking!



Write for current issue. Send for it today.

THE COOPER ALLOY FOUNDRY CO.
HILLSIDE, NEW JERSEY

THE WORLD'S LARGEST FOUNDRY DEVOTED
EXCLUSIVELY TO THE CASTING OF STAINLESS STEEL

When inquiring check CP 5466 on handy form, pgs. 2-3

DECEMBER, 1949

QUICK HEATING and COOLING . . . THOROUGH MIXING with

DOPP-BUFLOVAK KETTLES



Glues and adhesives are successfully processed in this 500-Gal. Kettle.

Wherever mixing, heating, or cooling is a batch processing operation, DOPP-BUFLOVAK Equipment offer many savings, by lowering production costs . . . simplifying operation . . . processing a better product.

Here are some of the profit-building features that can be adapted in the processing of Resins, Soaps, Greases, Pharmaceuticals, Plastics, Adhesives, Food, and many other products:

1. Many kinds of material can be processed in same unit.
2. Thorough mixing assured by double motion paddle agitators.
3. Overheating of product prevented by positive scrapers on agitators, that clean the heating surface as the material is mixed.
4. Quick heating and cooling results from thorough agitation and intimate contact with clean heating surface.
5. Material completely discharged through unique flush type valve.
6. Materials of different consistencies successfully handled by variable agitator speeds.
7. New enclosed double motion agitator drive, with gears that operate in a bath of oil, insure dependable, quiet operation.

DOPP-BUFLOVAK Kettles are available in many types and sizes. Write us today about your specific needs.

BUFLOVAK EQUIPMENT DIVISION of BLAW-KNOX COMPANY

1645 Fillmore Ave.

Buffalo 11, N. Y.

When inquiring check CP 5472 on handy form, pgs. 2-3

Here's a Packing that's Really Inert



"JOHN CRANE" CHEMLON FOR ALL CHEMICAL SERVICES

"Chemlon packing on reciprocating and rotary pumps with 50% concentrated H_2SO_4 has been very effective for the past ten months"—"Ten times more efficient than any previous packing for viscous di-acetone dope."

These reports on the revolutionary new "John Crane" chemically inert packing are typical. Engineers are finding

that Chemlon lasts longer on all chemical services. Why don't you pack a pump or small valve and see its efficient performance for yourself?

There's an interesting new free booklet available—describing Chemlon in detail.

WRITE FOR YOUR COPY.

CRANE PACKING COMPANY

1821 CUYLER AVENUE

CHICAGO 13, ILLINOIS

When inquiring check CP 5473 on handy form, pgs. 2-3

NEW LITERATURE

Records combustibles content of gaseous mixture

Two-pen continuous graphic combustibles recorder embodies sensitivity, sturdy construction, and ease of installation. Operates electronically on the catalytic combustion principle. Typical applications: boiler furnaces, rotary kilns, industrial furnaces, chemical processes. Uses are illustrated by drawings and photographs in 16-page, 3-color bulletin. Complete discussion of the instrument is included.

Air or electrically-operated control of combustibles content is available; alarm contacts can be incorporated in recorder. Dimensional diagrams, schematic circuit diagram, graphs, and recorded charts are shown. Bul. 150-A, issued by the Bailey Meter Company, Dept. CP, 1050 Ivanhoe Rd., Cleveland 10, O. When inquiring specify CP 5474 on handy form, pages 2 and 3.

Exact, easily-controlled heat for combustion processes

Exact and easily-controlled heat for combustion processes is provided by electric organic combustion furnaces, according to 4-page illustrated circular. Each section of furnace is used independently of others, and may be moved along rails to provide combustion at different points.

Temperature range, construction, operation, voltages, etc., are described. Bul. HD 735, issued by Hevi Duty Electric Company, Dept. CP, Milwaukee 1, Wis. When inquiring specify CP 5475 on handy form, pages 2 and 3.

Compares resistances of 10 alloys to corrosives

Corrosion resistances of stainless, monel, and nickel castings are tabulated in data sheet. Designed to simplify selection of the best alloy when the corrosive agents and conditions are known.

Ten alloys are listed as having excellent, good, fair, poor, or no resistance to each of 133 corrosives. Includes comparison of alloys for corrosive medias encountered in specific industries. "Corrosion Resistance of Stainless, Monel & Nickel Castings", issued by The Cooper Alloy Foundry Co., Dept. CP, Hillside, N. J. When inquiring, specify CP 5476 on handy form, pages 2 and 3.

Quick make, break operation stops pitting of contacts

Heavy duty industrial safety switches with high interrupting capacity are featured in 4-page, 2-color bulletin. Manufacturer cites applications in furnaces and ovens, motor circuits, main entrance switches, etc.

Switches can be furnished in a complete range of 30 to 1200 amperes, including 2, 3, and 4-pole designs. Horsepower and break full-rated load data is given. Integral parts are shown in exploded view.

Bul. TEC-302A, issued by The Trumbull Electric Manufacturing Company, Dept. CP, Plainville, Conn. When inquiring specify CP 5477 on handy form, pages 2 and 3.

Lifts, up-ends, and dumps bags, drums, bulk

Dumper which lifts and dumps any free flowing material by push-button control is featured in an 8-page booklet. It is capable of being moved from job to job on its own

CHEMICAL PROCESSING Preview

NEW LITERATURE

caster wheels. Standard dumping heights are 5, 6, 7, 8, 9, 10 and 12 ft; other sizes can be provided.

Dumper containers are available in 6 standard types. They are detachable and interchangeable to suit the job.

Mechanical and safety features are completely discussed; specifications are included. Photographs illustrate how the dumper is adapted for handling bags, drums, and bulk.

"Elevator and Dumper", issued by Colson Equipment & Supply Co., Dept. CP, 1317 Willow St., Los Angeles 13, Calif. When inquiring specify CP 5478 on handy form, pages 2 and 3.

Chemistry of acetylene under pressure

The chemistry of acetylene under pressure is critically discussed in a 358-page text entitled "Acetylene and Carbon Monoxide Chemistry." All major chemical processes based on acetylene are described in detail, with special emphasis on recent developments in Germany, the US, and elsewhere.

Actual operating conditions and yields for many processes are presented. By J. W. Copenhaver and M. H. Bigelow. Remit \$10 direct to Reinhold Publishing Corp., Dept. CP, 330 W. 42nd St., New York 18, N. Y. Or, when inquiring, specify CP 5479 on handy form, pages 2 and 3.

Details speeding of operations with wire conveyor belts

Flow sheet shows sequence of processing operations in a typical pottery plant from raw materials to finished product. Folder gives detailed descriptions of 13 operations that can be accomplished on woven wire conveyor belt.

Tells how belt installation in these operations will affect rate and cost of production. "13 Ways To Speed Continuous Pottery Production", issued by the Cambridge Wire Cloth Co., Dept. CP, Cambridge, Md. When inquiring specify CP 5480 on handy form, pages 2 and 3.

Catalogs equipment for 40 unit operations

Standard and modified processing equipment to complete processing systems are described in 36-page, 2-color catalog. Specifications, photographs, and diagrams of equipment for 40 unit operations and processes are given.

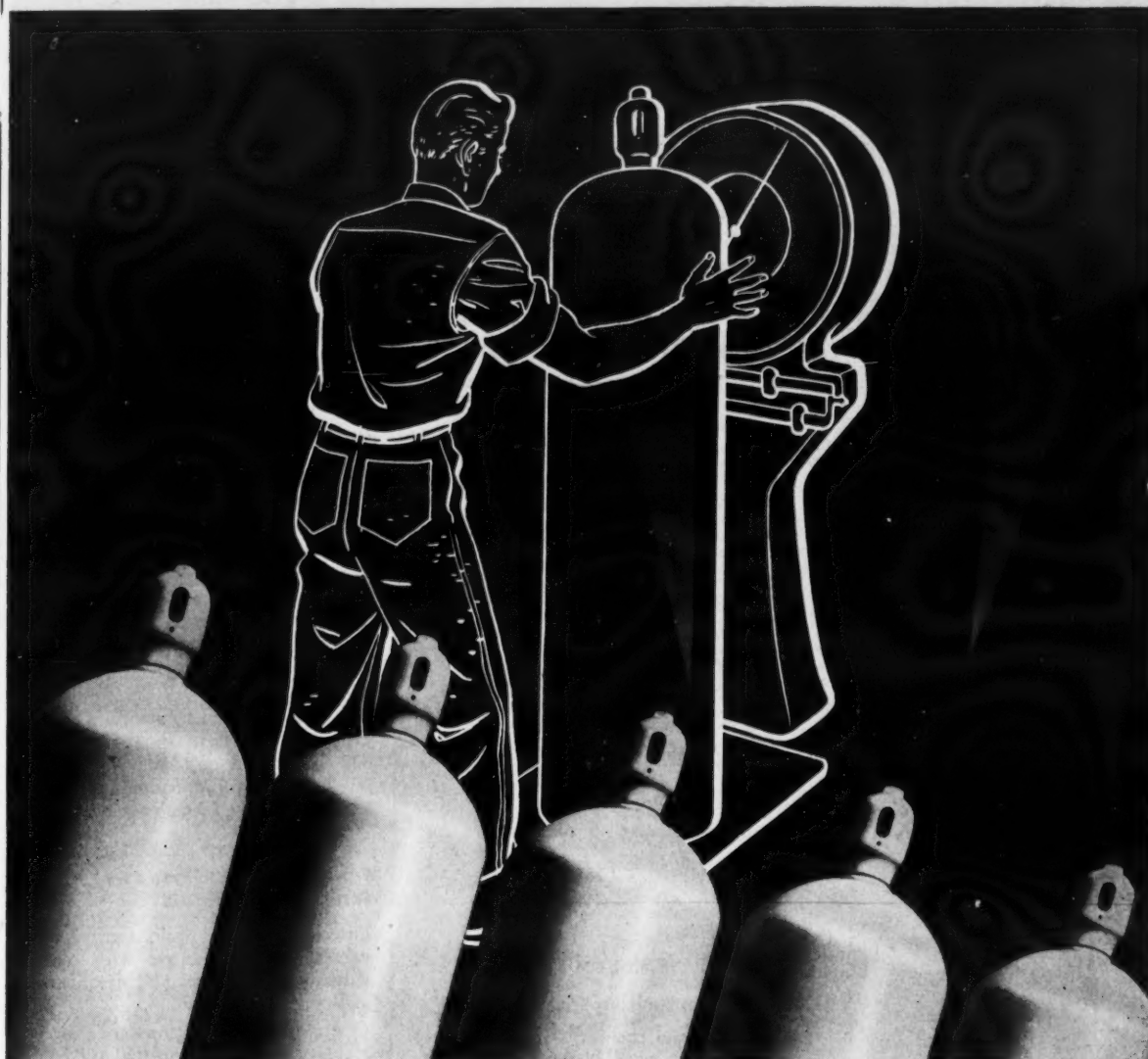
Outlines a special-problems service and the experimental facilities available to customers. Cat. CEC-49, issued by The Patterson Foundry and Machine Company, Dept. CP, East Liverpool, O. When inquiring specify CP 5481 on handy form, pages 2 and 3.

Liquid-handling catalog includes fillers, filters, pumps

Asbestos filter sheets, production and laboratory filters, a stainless steel centrifugal pump, portable, mobile and stationary vacuum bottle fillers, also swivel joint mixers are among items described and illustrated in a 16-page catalog.

Filters include disc-type, cylinder pressure, stainless steel and hard rubber models, pyrogen and bacterial retentive types. "Liquid Handling Equipment," issued by Ertel Engineering Corporation, Dept. CP, Kingston, N. Y. When inquiring specify CP 5482 on handy form, pages 2 and 3.

DECEMBER, 1949



**COSTS WEIGH LIGHTER
WITH HACKNEY
LIGHTWEIGHT CYLINDERS**



PRESSED STEEL TANK COMPANY
Manufacturers of Hackney Products

Main Office and Plant: 1463 South 66th Street, Milwaukee 14, Wis.
1387 Vanderbilt Concourse Building, New York 17
208 South LaSalle Street, Room 2085, Chicago 4

235 Hanna Building, Cleveland 13
568 Roosevelt Building, Los Angeles 14

CONTAINERS FOR GASES, LIQUIDS, AND SOLIDS

When inquiring check CP 5483 on handy form, pgs. 2-3

Yes, costs do weigh lighter on the minds of shippers using Hackney Cylinders. That's because Hackney Cylinders are comparatively light in weight to assure shipping and handling economies.

They give utmost protection, too—thanks to their rugged strength. It's the Hackney Deep Drawing Process that makes possible both these desirable qualities—strength and light weight—as it assures uniform sidewall thickness and eliminates all excess material. Then, to improve the physical properties still further, controlled heat-treating is employed after complete fabrication.

Write for full details

* 5 Patterson-Kelley Solutions to your Kettle problems



A Kettle with modified paddles

General purpose mixer for heavy materials.



B Asbestos Mixer

With draft tube and turbine; adaptable also for use in mixing other fibrous materials.



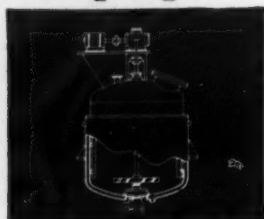
C Open Top Mixer

Suitable for a variety of mixing operations involving liquids up to medium viscosity, or for keeping light solids in suspension.



D Soap Crutcher

Used for mixing and blending soap in paste form; also suitable for other pasty or fibrous materials.

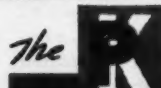


E Kettle with turbine and baffles

Suitable for mixing liquids of low or medium viscosities, slurries; for suspending heavy solids; good for dispersions and rapid dissolving.

Patterson-Kelley offers, without obligation, its accumulated experience to recommend the most suitable design and material for specified operating conditions.

*First of a series of kettles and their applications.



please send your process equipment catalog

Patterson-Kelley Co., Inc.

28 Lackawanna Ave., East Stroudsburg, Pa.

name

title

firm

address

offices or representatives in principal cities

When inquiring check CP 5484 on handy form, pgs. 2-3

NEW LITERATURE

Dust filter cleans itself continuously

Dust filter designed for continuous automatic operation, constant air volumes, and parallel air flow is described in 8-page, 2-color bulletin.

Diagrams and photographs represent its features and installation. Specifications are included. Other dust collection equipment is shown. Bul. 491, issued by The Day Company, Dept. CP, 810 Third Ave., Minneapolis 13, Minn. When inquiring specify CP 5485 on handy form, pages 2 and 3.

Permanent-element filters

Simplified backwashing, permanent filtering elements and built-in provision for pre-coating are features of porous-stone and wire-mesh filters described in 12-page, 2-color bulletin. Diagrams show speed and ease of pre-coating elements with filter aid, of disposing of filter aid and filter cake.

"Industrial and Laboratory Filters", issued by Titeflex, Inc., Dept. CP, 600 Frelinghuysen Ave., Newark 5, N. J. When inquiring specify CP 5486 on handy form, pages 2 and 3.

Float valves and boxes for chemical plants

Direct-acting and pilot-control float valves, also float boxes with control valve, are illustrated and described in a 4-page circular.

Operation, construction and dimensions of single-seat and balanced float valves are presented. Literature recommends valves for chemical plants, paper, textile and steel mills, etc.

"Keckley Float Valves," issued by O. C. Keckley Company, Dept. CP, 400 W. Madison St., Chicago 6, Ill. When inquiring specify CP 5487 on handy form, pages 2 and 3.

15 gauge-and-valve combinations

Bulletins describe 1) a dial-type gauge for distant reading of boiler, deaerating tank and other water levels, and 2) gauge-and-valve sets for end, side or back connection, with 15 illustrations.

The dial-type gauge adjusts for 0 to 3000 WSP, and is available with visible and audible alarm. It can be read in the dark, in event of power failure. Accuracy of 1/2 to 1% of scale reading is stated.

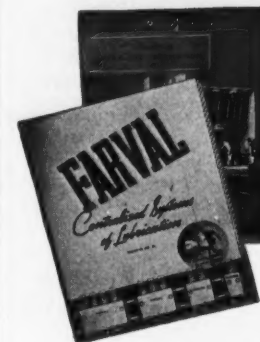
Units No. 118 (gauge-and-valve sets), and 120 (dial-type gauge), issued by

Is this the solution to your lubrication problems, too?

FOR more than 20 years, Farval has been saving money for users. Through efficient, dependable lubrication of machines and industrial equipment of all kinds, Farval saves 4 ways: It saves oiling labor, it saves lubricant, it reduces bearing expense, it eliminates down time.

The Farval System is a positive mechanical method of delivering oil or grease under pressure to a group of bearings from one Central Station, in exact quantities, as often as desired. It consists of a central pumping unit, two main supply lines and a measuring valve for each bearing.

Catalog No. 25 and "Case Studies" give you the facts and figures. The Farval Corporation, 3257 East 80th Street, Cleveland 4, Ohio.



Write for these
FREE bulletins

For personalized service:
Write or phone, John E. Millikan,
Cleveland exchange-VU 6600.



When inquiring check CP 5488 on handy form, pgs. 2-3

NEW BULLETIN describes IMPROVED PLUG VALVE FOR CORROSIVE SERVICE



Contains full description, dimensions, and a cutaway view that shows at a glance the superior construction of this new top lubricated valve. The body of the valve is regularly made and stocked in Durimet 20. Other alloys available on special order. The plug proper is of a hard corrosion resisting alloy, such as Duriron or Durichlor, and the tank is made of stainless steel.

For complete details, write today for your free copy of Bulletin 636.

THE DURIRON CO., INC., DAYTON 1, OHIO
Branch Offices in Principal Cities

DURCO ADV 95 GM

When inquiring check CP 5489 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview



SMOOTH INTERIOR
FREE FLOW

FLOWLINE Stainless STEEL WELDING FITTINGS
For all Corrosion-Resisting Applications

Smooth, uninterrupted flow is assured in any piping system using FLOWLINE stainless steel welding fittings because:

- (1) The interior walls of each fitting are free from scores, scratches, die marks, waves, or ridges.
- (2) All elbows are "long radius"—1½ times nominal pipe size.
- (3) All fittings perfectly match corresponding tubing and pipe sizes in circularity and in wall thickness.
- (4) The ends are accurately machine tool cut—fittings of wall thickness over .083" are beveled to 37½° with approximately 1/16" straight face; those with wall thickness of .083" or lighter are cut straight, not beveled.

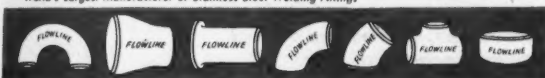
FLOWLINE fittings are available in Stainless Types 304, 316, and 347—to match pipe and tubing of various wall thicknesses in sizes from ¾" through 12".

The Most Complete Line of Stainless Steel Welding Fittings

WELDING FITTINGS CORP.
NEW CASTLE, PENNSYLVANIA

Formerly Stainless Alloy Division - Pittsburgh Piping and Equipment Co.
World's Largest Manufacturer of Stainless Steel Welding Fittings

Send for Bulletin S-310



When inquiring check CP 5490 on handy form, pgs. 2-3



WRITE TODAY
for free copy
of **BRIGHTON'S**
new paint and
varnish catalog

We take pleasure in presenting our new and comprehensive catalog on equipment for the Paint and Varnish Industry.

FREE ON REQUEST. WRITE TODAY TO

BRIGHTON
COPPER WORKS, INC.
CINCINNATI 14, OHIO

When inquiring check CP 5491 on handy form, pgs. 2-3

DECEMBER, 1949

NEW LITERATURE

Jerguson Gage & Valve Co., Dept. CP, 80 Fellsway, Somerville 45, Mass. When inquiring specify CP 5492 on handy form, pages 2 and 3.

15 to 200 hp motors for dusty, oil-laden atmospheres

Constant or adjustable speed, 15 to 200 hp Unit-Cooled DC motors for dusty, dirty or oil-laden atmospheres are illustrated, described, in a 4-page, 2-color folder.

Features such as operating economy and ventilation independent of motor speed are discussed. Operating characteristics are described. Bul. GEA-4469A, issued by General Electric Company, Apparatus Dept., Dept. CP, Schenectady 5, N. Y. When inquiring, specify CP 5493 on handy form, pages 2 and 3.

Lift ½ or 1-ton loads by hand chain hoist

Specifications and component parts of hand chain hoists of ½ and 1-ton capacities are tabulated and illustrated in detail in a 4-page bulletin.

One-ton hoist weighs 53 lbs, requires 56-lb pull to lift full capacity. Four other types of hoists are shown, with appropriate bulletin numbers. Bul. P-5, issued by The Harrington Co., Dept. CP, Philadelphia 30, Pa. When inquiring specify CP 5494 on handy form, pages 2 and 3.

Aluminum ladders range in types, size

Aluminum folding-step, warehouse, and straight ladders are illustrated and described in 12-page, 2-color folder.

Features are: light weight, safety, and long life. Specifications for all types are given. "Alco-Lite Aluminum Ladders for Industry", issued by Aluminum Ladder Co., Dept. CP, Worthington, Pa. When inquiring specify CP 5495 on handy form, pages 2 & 3.

Beneficiation facilities on non-profit basis

Illustrated 20-page, 2-color buying guide in bulletin form covers 19 types of processing equipment.

Bulletin points out the testing facilities and equipment in maker's research laboratory for beneficiation of basic raw materials. These facilities are offered to customers on non-profit basis.

Bul. 25B6177D is issued by Allis-Chalmers Mfg. Co., Dept. CP, Milwaukee, Wis. When inquiring specify CP 5496 on handy form, pages 2 & 3.



ARE YOU FILTERING

ACIDS
ALCOHOLS
KETONES
ESTERS
WAXES
CHLORINE or BROMINE WATER

CAUSTICS
ALDEHYDES
ETHERS
OILS
BENZENE

IN OUR WIDE LINE OF Synthetic Fiber Filter Cloths you will find the cloth with the right chemical resistance, temperature resistance, and design for your job. We've been serving the process industries with their cloth requirements for over 40 years. We have our own mills where our synthetic fiber cloths are woven to rigid specifications.

The use of the proper cloth reduces down time, cuts cloth change costs and gives you faster, easier filtering. Send for technical data on these cost cutting filter cloths.

HERE IS THE FILTER MEDIA LINE

NYLON ORLON† (an acrylic fiber) VINYON* GLASS COTTON

VINYON N* SARAN

***TMC&CCC**
†T.M. E.I. du Pont de Nemours & Co. (Inc.)



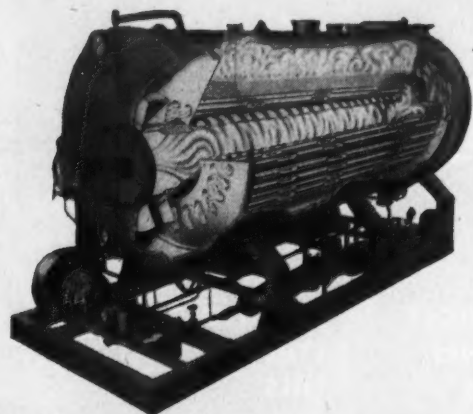
NFM Weavers of Industrial Filter Media for over Forty Years
National Filter Media Co.

General Offices & Mills: New Haven 14, Conn.
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Sales Offices—Representatives

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When inquiring check CP 5497 on handy form, pgs. 2-3



This AMESTEAM is A GENERATOR Streamlined for Saving

This cut-away view of an AMESTEAM Generator shows the three full-length-of-boiler passes arranged to provide a smooth, even flow of gases through the Unit — insuring more efficient conversion of your fuel BTU's into steam, with resultant low stack temperatures, high CO₂ and a guaranteed thermal efficiency of 80%.

And it's fast, too — full steam pressure in 20 to 30 minutes.

Buy an AMESTEAM Generator — substitute its consistently smooth daily operation for your present inefficient boiler room conditions.

AMESTEAM Generators are available from 10 h.p. to 400 h.p.; for pressures from 15 lbs. to 200 lbs.; and for firing with Light Oil, Heavy Oil, Straight Gas, Light Oil-Gas or Heavy Oil-Gas Combinations. For full information —

AMES IRON WORKS

Oswego, N. Y.

Builders of Better Boilers
Since 1848

SEND
IN
COUPON
Today

AMES IRON WORKS
Box 612, Oswego, N. Y.

I would like to know more about Amesteam Generators.
Please send your latest bulletin.

Name.....
Company.....
Address.....
City..... Zone..... State.....

When inquiring check CP 5498 on handy form, pgs. 2-3

Page 70

Automatic Shut-off of Flow Lines, in Case of Overpressure or Break in Line

Valve system operates entirely from line pressures;
slight surges do not stop flow

USES: To protect flow lines from overpressure and to shut off flow in case of line break.

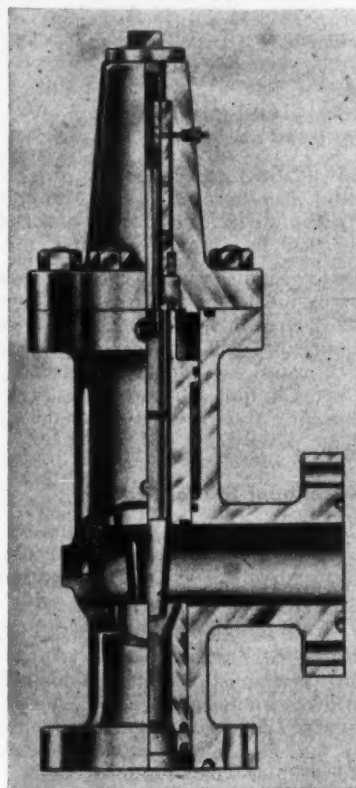
Features: In flow lines where surgings or slight pressure variations are normal, shut-off can be set so that incidental pressure variations do not operate shut-off.

Description: Shut-off mechanism includes 4 valves; master valve to shut off flow; differential pressure pilot to operate master valve in case of line break and to prevent operation of master valve in case of slight pressure variations; trip valve to operate master valve in case of increased differential pressure — differential pressure valve operates this trip valve; and an overpressure valve which operates master valve in case of predetermined increase in pressure.

Master valve is illustrated with side cut away to show component parts. Center stem restricts flow of fluid through valve; turning down of stem permits regulation of flow to any desired level.

Surrounding the center stem is an annular piston. When one of the other valves in the system operates because of overpressure, line break or other cause of increased differential pressure, upstream pressure is introduced into master valve above the annular piston, which descends and stops flow completely.

Differential pressure pilot is located outside of flow line, with pressures from both sides of master valve introduced into it above and below piston which is balanced by weights. Weights can be changed to accommodate any desired differential pressure. When differential pressure rises past pre-set level, the piston rises, operating lever which trips the trip valve.



Master valve restricts flow to any required level, has provisions for cutting off flow when increased differential pressure, line break or increased flow operates other valves in the system

Trip valve is connected to main line above master valve. Valve remains closed by lever and latch which are opened by action of differential pressure pilot. When opened, the trip valve operates the shut-off piston in the master valve.

Overpressure valve is also connected to main line above master valve. Valve is held closed by shear pin, which shears at any predetermined pressure. When valve opens, upstream pressure is applied to shut-off piston to stop flow as in the case of the trip valve.

Source: Page Oil Tools Inc., Dept. CP, 3356 Lime Ave., Long Beach 7, Calif. . . or for more information check CP 5499 on handy form, pages 2 and 3.

**Abrasives, corrosives do not
harm mechanical
shaft seals . . .**

hydraulic balancing of pressure between sealing faces permits use at 400 psi

Uses: For installation on any equipment which is moving liquids and which requires positive shaft seals, as well as for replacement of conventional stuffing boxes where packing has proved unsatisfactory.

Features: Design provides hydraulic balancing of pressure on sealing faces, permitting use of seals under pressures to 400 psi. Special balance check permits use at pressures over 400 psi.

Description: Shaft seals are available in 3 general classifications: standard, abrasive-resistant and special. Standard seals handle such liquids as water, gasoline, alcohol, oils, brine, ammonia, amyl acetate, etc.

Abrasive - resistant seals perform under all abrasive conditions, handle all fluids listed above. Special seals also withstand severe abrasion, handle all above-mentioned liquids, and also such materials as chloroform, carbon tetrachloride, concentrated and boiling acid and basic solutions. Shaft seal is of cartridge type; unit construction simplifies replacement and maintenance. Liquid temperatures to 250°F can be handled with no water cooling. With water-cooled stuffing boxes, temps to 300°F can be accom-



Assembled view of abrasive-resistant shaft seal

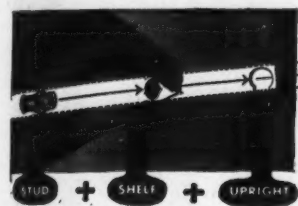
CHEMICAL PROCESSING Preview

modated. Seals can be furnished for all shafts from 1/2 to 3" in diameter. Further information is carried in maker's Bulletin B-571.

Source: Food Machinery and Chemical Corp., Peerless Pump Div., Dept. CP, 301 West Avenue 26, Los Angeles 31, Calif. . . or for more information check CP 5500 on handy form, pages 2 and 3.

Studs slip into 'keyholes' to support heavy-duty steel shelving . . .

no nuts or bolts; 18-gauge shelves have 2000-lb cap.; sections are 6 to 10' high, 12 to 24" deep



Nothing to unscrew

Uses: Steel shelving for heavy loads and installations requiring extreme stability.

Features: No nuts, bolts or tools. When fully reinforced, the 18-gauge shelves are said to be capable of supporting 2000 lbs. Rapidly assembled. Instantly adjustable.

Description: In sections 36" wide, 6 to 10' high, 12 to 24" deep. Sections are assembled with studs. A slope in the "keyhole" (see illustration) joins with taper on the stud to form tight, solid grip. Trade name: "Iron-Grip."

Source: Precision Equipment Company, Dept. CP, 3710 Milwaukee Ave., Chicago, Ill. . . or for more information check CP 5501 on handy form, pages 2 and 3.

Obtain 1000-psi oil pressure for hydraulic units from 90-psi air lines . . .

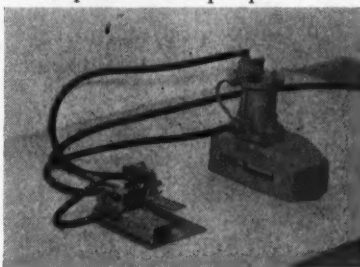
air-operated pump is continuous-acting, consumes 3.5 cfm air to pump 1.5 gpm oil

Uses: For use with hydraulic equipment such as elevating tables, positioners, strip and sheet feed tables, etc.

Features: Pump is continuous acting and air-operated. Working oil pressure of 1000 psi can be obtained from a 90 psi air pressure. Single 3-position, 4-way valve operates the release and controls pumping action.

Description: Relatively large air piston is connected directly to small hydraulic piston which pumps oil under high pressure. Reciprocating valve alternately diverts air pressure from one side of the piston to the other.

Air motor operates continuously by holding open valve which controls air supply. Pump is equipped

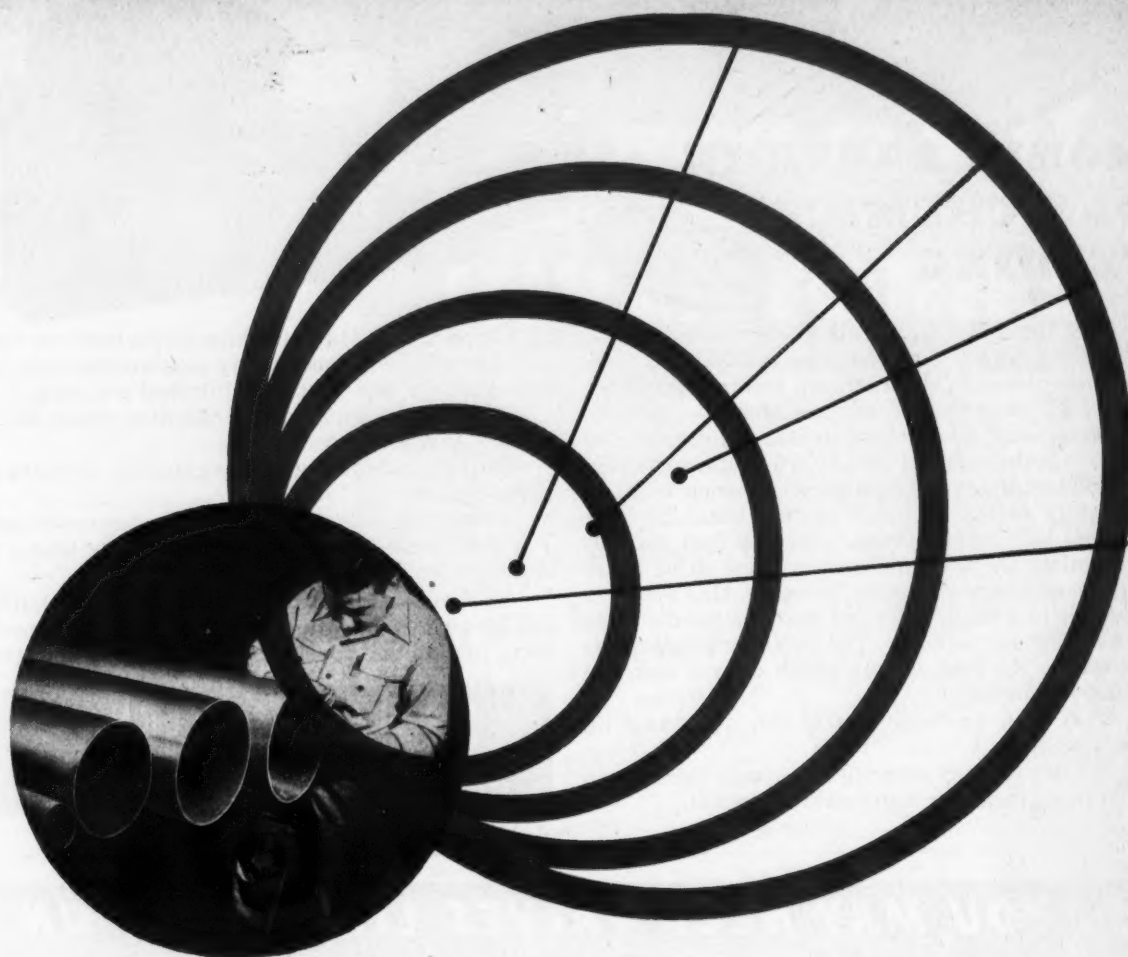


Air operated hydraulic pump

with built-in release valve to permit pressurized oil in the hydraulic cylinder to return to the reservoir by gravity.

Displacement of oil per stroke-cycle is 3.4 cu. in. Depending on the air pressure, 1.0 to 1.5 gallons of oil can be pumped per minute. Air consumption is 3.5 cfm (90 psi) at an average pumping rate.

Source: Product of the Lyon-Raymond Corporation, Dept. CP, 6359 Madison St., Greene, N. Y. . . or for more information check CP 5502 on handy form, pages 2 and 3.



engineers who design for long life specify TRENTWELD

Here are 7 reasons why TRENTWELD is better

1. Largest variety of sizes — 4 1/2" to 30" inclusive
2. Finished tubing... machine-formed, machine-welded, machine-sized for uniformity
3. Made in a tube mill by tube experts
4. Made from tested cold rolled sheets... completely fused into finished tubing without added rod metal
5. No zone of weakness for corrosion to attack
6. Uniform section, metallurgically correct
7. Available for fabrication with any fittings

Trentweld Large Diameter (4 1/2" to 30") Stainless Steel Tubing should not be compared to rolled up and hand welded sheets: Trentweld tubing is machine formed and machine welded without metal added. The weld is fused to the parent metal by an exclusive Trent development. That's what makes the difference, and that's why more and more fabricators, designers and manufacturers of all types of processing equipment are turning to Trent for their tubing requirements.

When you do business with Trent, you get top quality tubing PLUS engineering assistance to put stainless tubing to work in your application . . . better! Write for Trentweld Data Bulletin and tell us the application you have in mind.

TRENT TUBE COMPANY

Subsidiary of Crucible Steel Company of America

General offices and plant: East Troy, Wisconsin

Sales offices: Chicago—4501 W. Cortland Street; New York—Chrysler Building

TRENTWELD

STAINLESS STEEL TUBING

When inquiring check CP 5503 on handy form, pgs. 2-3

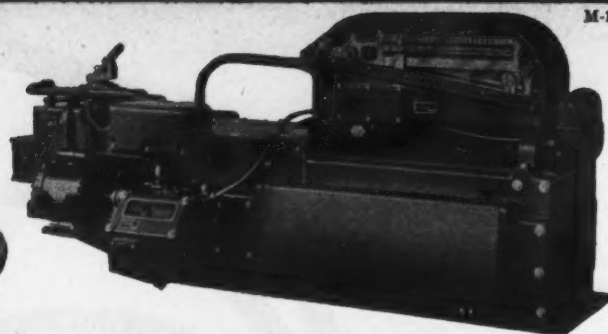
MONEY SAVER IN DRY CHEMICAL FEEDING

This W&T Merchen Scale Feeder with a Screw Type Feed Section has plenty of features that will save you money in dry chemical feeding. Handling almost all hard-to-feed dry chemicals — carbon, pigments, soda, lime, etc.—this sturdily constructed machine both *feeds* and *weighs* in a single operation.

Efficient operation is assured by such features as tightly sealed shafts to protect bearings from dust, all ball bearing construction, a feed register to calculate the total amount fed, and drive gears that operate in an oil bath. Moreover, this feeder is available in a variety of sizes that can handle up to 2 cubic feet per minute. (The maximum capacity is limited by the feed screws which deliver material to the Weigh-belt.)

Here are some of its other outstanding characteristics.

Can be manually controlled or synchronized with other equipment for automatic operation.



Constant speed belt weighing all the material that is fed coupled with heavy duty construction help insure years of dependably maintained accuracy.

Compact design requires little floor space. Meets class 2 group G specifications.

Sturdy, dust-tight, corrosion resistant construction.

Removable side panels and gear box cover and a hinged Scale Beam cover permit ready access to all parts for easy maintenance.

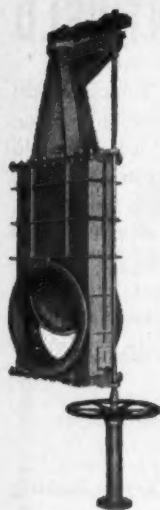
To find out more on how feeding BY WEIGHT, the Merchen Way, can eliminate your feeding problems, just contact your nearest W&T Representative.

WALLACE & TIERNAN
COMPANY, INC.

NEW YORK, N. Y. • NEW JERSEY • REPRESENTED IN PRINCIPAL CITIES

When inquiring check CP 5504 on handy form, pgs. 2-3

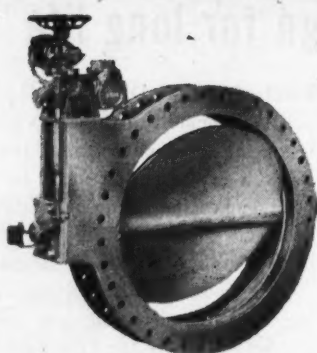
YOU MAY NEED VALVES LIKE THESE ON YOUR PROCESSING LINES OR EQUIPMENT



Left — Manual metal double disc slide valve — 36" pipe size — for coke oven by-products gas line carrying some sulphuric acid and ammonium sulphate.



Butterfly Valve — 42" size — with automatic motor control of large volumes of air.



Wafer type Butterfly Valve — 30" pipe size — with pneumatic diaphragm motor for control of gases at 30 p.s.i.

For positive control and quick shut-off in pipe lines or equipment — manually or automatically — without undue pressure drop or turbulence, there's a Rockwell slide valve or butterfly valve of any metal or rubber covered for any fluid. Sizes — 1" to 84" and pressures to 25 p.s.i. standard design, 125 p.s.i. special. Tell us your problem. Write for Catalog.

ROCKWELL VALVES

W. S. ROCKWELL CO. • 220 Eliot St., Fairfield, Conn.

When inquiring check CP 5505 on handy form, pgs. 2-3

M-11

PROCESSING EQUIPMENT

Forms protective film on skin, guards against dermatitis . . .

hand and arm cream is free from wax fillers; one application has prolonged protective effect

Uses: Hand and arm cream for protecting skin against paints, printing inks, lacquers, grease, grime, and oil.

Features: One application is said to provide prolonged protection; contains no wax fillers. Washes off easily.

Description: "Glov-Cote" acts like a glove over the hands and arms; forms a protective coating that washes off easily even in cold water — carrying the paint, grease, grime with it. Cream is packed in handy 16-oz jars for individual use.



Protective hand and arm cream

Use of the cream solves such problems as lost-time compensation cases due to dermatitis, and dissatisfaction of female employees with grimy hand appearance. Cream has been extensively tested.

Source: Sample of Glov-Cote is obtainable from the Chase Chemical Company, Dept. CP, 2901 Dover Ave., Cleveland, O. . . or for more information check CP 5506 on handy form, pages 2 and 3.

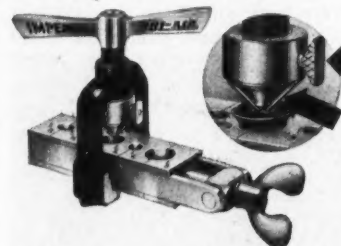
Flare, burnish tubing 'in air' to maintain uniform wall thickness . . .

flare is formed with tubing extended above face of die block; tubing is held tightly without scoring

Uses: For use on copper, brass and aluminum tubing in making up tighter and stronger SAE flared tube joints.

Features: Tool has three rollers embodied in spreader cone and is said to "roll flares in the air" because flares are not formed against a flaring block.

Instead, flare is rolled out with tubing extended above face of flaring block. Because base of flare is not formed against die, original wall thickness is maintained at this point, giving a stronger flare which is said to stand up far longer under vibration.



Yoke in place on die holder; insert shows burnish knob, spreader rollers

Description: Tool has a die holder with heat treated sliding dies for clamping tubing (see illustration). There is only one thumb screw at one end to tighten. Deep, smooth-surface dies hold tubing tightly without scoring. Yoke is made of forged steel.

Operation is easy. Tubing is inserted between segments of proper size die block. Cam action clamp is swung into position against end die and thumb screw is tightened. Yoke is then slid over end of die holder and feed screw is turned several times. Rollers in spreader cone (indicated by lower arrow) roll out flare. Flare is burnished by turning handle two or more revolutions with control knob (indicated by upper arrow) in burnishing position.

CHEMICAL PROCESSING Preview

Silicone News

SILASTIC[®] 250

FROM +500° F.
DOWN to -130° F.

**The STRONGEST
TOUGHEST
SILICONE
RUBBER
AVAILABLE**

Over a Temperature Span of 630° F., Silastic 250 has greater tensile strength, elongation, tear and abrasion resistance plus better dielectric properties than any other rubbery material. Even at room temperatures, abrasion resistance compares favorably with that of many organic rubbers. It has 2 to 6 times the mechanical strength and 3 times the tear resistance of the best silicone rubbers previously available.

Dielectric Properties, good at room temperatures, remain relatively constant over a wide frequency range and a wide temperature span.

Silastic 250 opens up thousands of new applications in the aircraft, automotive, process, electrical and electronic industries.



Phone our nearest branch office or write for a new Silastic 250 data sheet J-12

**DOW CORNING CORPORATION
MIDLAND, MICHIGAN**

Atlanta • Chicago • Cleveland • Dallas
Los Angeles • New York
In Canada: Fiberglas Canada, Ltd., Toronto
In England: Albright and Wilson, Ltd., London

First in SILICONES
Dow Corning

When inquiring check CP 5507
on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Tool will flare tubing in following sizes: 1/4, 5/16, 1/2 and 5/8".

Source: No. 355-F flaring tool is made by Imperial Brass Mfg. Co., Dept. CP, 1200 West Harrison St., Chicago, Ill. . . . or for more information check CP 5508 on handy form, pages 2 and 3.

**Spray-dry 2 to 7 tons/day
with unit designed for
pilot plants . . .**

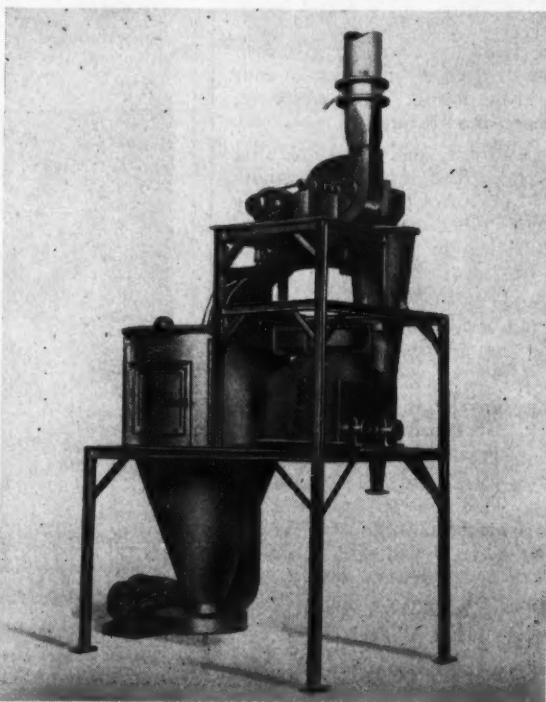
dryer has simplified semi-automatic operation; is compact, easy to clean

Uses: Spray drying in moderate production and pilot plant operation.

Features: Dryer was designed with a view to reduced field erection, and to meet the requirements of the purchaser with a limited budget. Dryer is compact, occupying a floor space of 10 x 15' and overall headroom of 23'.

Description: "Number 2" spray dryer consists essentially of a heater, a drying chamber with Bowen high speed spray machine, collection system and fan, all in compact arrangement. Has instrumentation for simplified semi-automatic operation. Contains recording instruments for inlet and outlet temperatures, as well as controls for over-temperature and inlet temperature.

Heat sensitive materials can be "shock cooled" by admitting



Economical dryer for moderate production or pilot plant use

cooling air through side air inlets. Production rate for the dryer is 2 to 7 tons per day.

Drying chamber is shipped as assembled unit; structural framework is sectionally shop welded and requires bolting in only 6 sections.

Source: Manufactured by Bowen Engineering, Inc., Dept. CP, 100 Station Rd., North Branch, N. J. . . . or for more information check CP 5509 on handy form, pages 2 and 3.

355 ways to CUT Industrial Wheel and Caster INVENTORIES

**This NEW Aerol
Manual Tells You How**

Yours for the asking

Compiled after exhaustive research

Hundreds of specific problems confronting actual users of materials handling equipment were studied. The solutions to these problems and the resulting developments form the basis of the AEROL MATERIALS HANDLING MANUAL.

Detailed illustrations Extreme care was used in the preparation of all photographs and drawings which illustrate our products and the problems they solve.

Accurate, easily understood technical data Every dimension, load rating and code number is tabulated to quickly and accurately determine your needs. Cross-references, compensation tables and conversion charts are completely eliminated.

Additional information Helpful hints about each product, in addition to technical details, help you find new uses for our products that save money and increase efficiency.

Write today for your copy of the AEROL MATERIALS HANDLING MANUAL.

Aerol factory warehouses are located in strategic cities throughout the United States. Write to the nearest Factory Branch for full information.

2820 Ontario Street
Burbank, California
1241 East 26th Street
Cleveland, Ohio

844 North Halsted Street
Chicago, Illinois
40-68 Lawrence Street
Flushing, L.I., New York

**NO WHEEL ROLLS LIKE AN
GUARANTEED 20% EASIER ROLLABILITY**

AEROL CO., INC., 2820 Ontario Street, Burbank, California
Please send me the AEROL MATERIALS HANDLING MANUAL.

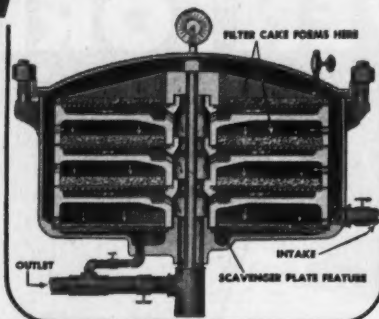
NAME _____
FIRM NAME _____
ADDRESS _____
CITY _____
ZONE _____ STATE _____

A subsidiary of Lock

AEROL WHEELS * CASTER RIGS * HAND TRUCKS

When inquiring check CP 5510 on handy form, pgs. 2-3

why Horizontal Filter Plates?



because—with horizontal plates, filter aids are permitted to flow in a natural direction, with gravity, and are deposited in an even cake of uniform thickness.

because—the filter cake rests flat on the supporting plate without tensile or distortive strain, will not crack, slip, or break under pressure, assuring even filtration.

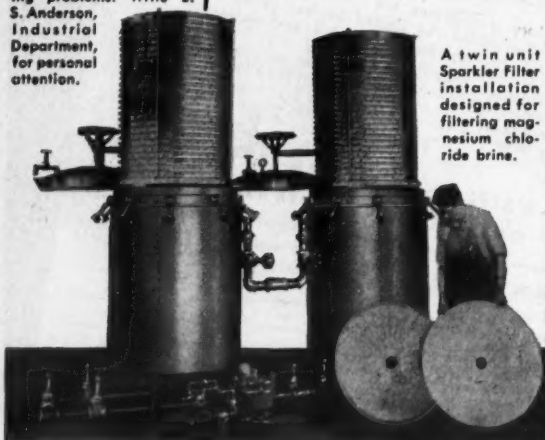
because—any filter paper, cloth, screens, or filter media can be used. Strength in the cake itself is not important, pressure simply presses the cake more firmly on the supporting horizontal plate.

because—horizontal plates are bolted together in a unit that is easily removed for cleaning. An extra unit assembly of horizontal plates can be immediately placed in the filter and the filtering process continued with slight interruption.

This is only part of the story—other exclusive features like the patented scavenger plate that makes possible the recovery of the last of a batch run and other operating advantages are reasons why Sparkler Horizontal Plate Filters are so widely used in the chemical processing industry.

SPARKLER horizontal plate FILTERS

Our filtration engineers are ready to cooperate in solving any of your filtering problems. Write E. S. Anderson, Industrial Department, for personal attention.



A twin unit Sparkler Filter installation designed for filtering magnesium chloride brine.

SPARKLER Manufacturing Co.

220 Lake Street, Mundelein, Ill.

When inquiring check CP 5511 on handy form, pgs. 2-3

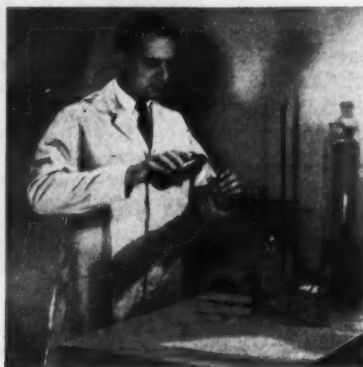
PROCESSING EQUIPMENT

**68 determinations show
fabric resists attack
by most reagents . . .**

clothing made from the fabric is acid resistant throughout — including pockets, threads, etc.

Uses: Industrial clothing — coveralls, laboratory coats, matched shirts, and trousers, etc.

Features: Fabric is permanently acid-resistant; is fire-resistant. Clothing is resistant throughout, including pockets, threads, etc. (excepting buttons and label).



Acid-resistant clothing

Description: "Chem-Wear" (Vinyon-N) fabric was submitted for tests to determine its resistance to 20-hour immersion in 26 chemical reagents. Sixty-eight determinations for visual appearance, shrinking, and deterioration at various temps and concentration were made.

Fabrics were conditioned for 4 hours at 65% relative humidity and 70°F before testing. Tested by the strip method, each specimen was stripped to 1 inch or 76 ends in the warp and 24 picks in the filling. After treatment, each was broken in a tensile testing machine.

Test results showed that: (1) Fabric does not shrink after 20 hours immersion in 26 specified reagents at various temps and concentrations. (2) Four of the reagents totally decomposed the fabric. Four other reagents deteriorated the fabric in excess of 20% loss in strength — only at higher concentrations and/or temps. (3) Reagents did not appreciably affect the fabric's pliability and hand.

Complete information of test results on Vinyon-N fabric for method of laundering are available in Report No. BC-2560.

Source: Vinyon-N industrial clothing is a product of Chem-Wear Inc., Dept. CP, 740 Broadway, New York 3, N. Y. . . . or for more information check CP 5512 on handy form, pages 2 and 3.

**Demountable hub sprockets are
keywayed, setscrewed;
eliminate reboring . . .**

plate sprockets can be replaced without removing hub from shaft; sprockets are made of steel

Uses: Provide practically any speed ratio desired. Meet requirements involving pitch ranges from 1/2 through 3 3/4".

Features: Reboring is not required, as interchangeable hubs are carried in stock in all bore sizes, properly keywayed and setscrewed. Time and expense of alterations are eliminated. Sprockets are interchangeable. Plate sprockets may be replaced on hub without removing hub from shaft. Larger or smaller plates may be used on same hub to give seasonal speed changes, and for replacement purposes.

Sprockets are made of steel for longer wear, and plates may be replaced when worn, thus presenting new tooth surfaces to chain and doubling life of sprocket.

To feed materials automatically 3 NEW GAST AIR PUMPS



**BOTH
VACUUM
AND
PRESSURE**



Single Chamber Model
3040—19 to 24 c.f.m.



Dual Chamber Model
10 x 1040 (Small size)



Dual Chamber Model
11 x 1740 (Large size)

These 3 new Air Pumps offer: Both strong "blow" for separating—and large capacity vacuum for "pick-up" of materials on automatic feeding of paper, cardboard, thin metal, acetate, etc. Gast Rotary Design produces large volume per h.p. at lower speeds. V-belt drives make installation and speed control easy. Get details—remember, "Air may be your Answer!" •

ASK ABOUT
3 NEW AIR
PUMPS—ALSO
"APPLICATION
IDEAS" BOOK



GAST ROTARY AIR MOTORS • COMPRESSORS • VACUUM PUMPS
(TO ONE H.P.) (TO 30 H.P.) (TO 28 INCHES)
GAST MANUFACTURING CORP. 101 Hickley St., Boston Harbor, Mass.

When inquiring check CP 5513 on handy form, pgs. 2-3

PREVENT ACCIDENTS by using AMERICAN COUNTER-TRED MATTING

A tough, durable mat made from 80% cotton cord, bound together with rubber compounds. Ideal for use around machinery where there is a minimum amount of oil. Non-slip surface affords a feeling of complete safety to those who work in wet, slippery areas. Keeps the feet dry. Exceptionally long wearing. Resiliency affords comfort, reduces fatigue, increases efficiency. Ridged bottom affords aeration and drainage. Lays flat. Rolls up for easy mopping of floor. 3/4-inch thick; 2 feet wide; any length in one foot sections vulcanized together. We also recommend Tuf-Tred Tire Fabric Matting, Neo-Cord Oil and Grease Resisting Matting, AmeriFlex Flexible Wood Link Matting, Perforated Corrugated Matting, Ezy-Run Colored Rubber Link Matting, Tile-Top Sponge Matting. Service by a staff of trained matting experts. Send us your matting problems. Write for prices and folder, "A Mat for Every Purpose".

AMERICAN MAT CORPORATION
"America's Largest Matting Specialists"
1798 Adams St. TOLEDO 2, OHIO

When inquiring check CP 5514 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Description: Demountable hub sprocket is made up of a steel plate sprocket, bored and drilled, to which a machined cast-iron hub is attached by heat-treated cap screws. Bolt holes in hub are threaded. Hubs are available with bores in increments of 1/16" between minimum bore size of 1/2" and maximum bore size of 4 7/16". Sprockets are produced with standard keyway and two set screws at no extra costs. Bolt holes in both plate sprocket and hub are jib drilled to permit interchangeability.

Source: "D. H." sprockets are made by Fort Worth Steel & Machinery Co., Dept. CP, 3600 McCart St., Fort Worth, Texas . . . or for more information check CP 5515 on handy form, pages 2 and 3.

Accurately-heated folding-blade folds sheet plastic materials at 60 to 180° angles . . .

standard attachments permit open or tight folding of sheeting .005 to .020" thick

Uses: For 60 to 180° production-folding of transparent sheet plastics, vulcanized fiber and other thermoplastic sheet materials .005 to .020" thick.

Will produce flat folded sheet protectors, card holders, index tabs, rectangular boxes, other products. One attachment produces 60 to 90° open fold required when folding



Plastic front work table of improved Thermofolder includes gauge for folding operations

rectangular plastic boxes. Another produces 180° folds as little as 1/16" wide, as required when making transparent plastic index tabs and card holders.

Features: Wider folding range than previous model, with new standard attachments. Improvements include laminated melamine plastic front work table with adjustable gauge for gauging folding operation at front of heated folding-blade as well as against rear gauge, permitting substantially increased production in many instances.

Temperature of folding-blade is accurately controlled by thermoswitch embedded in electrically-heated cast aluminum heat distributor bar. The switch operates a sensitive relay resulting in increased accuracy and prolonged life of the control.

Description: All rotating parts are mounted in either ball bearings or oilless-type plain bearings. Model 103-5 Thermofolder.

Source: Taber Instrument Corporation, Dept. CP, 106 Goundry St., North Tonawanda, N. Y. . . . or for more information check CP 5516 on handy form, pages 2 and 3.

DECEMBER, 1949

**LIGHTWEIGHT, STRONG
MAGNESIUM SIEVES**

**DURABLE ALL-METAL
CONSTRUCTION**

**EASY-TO-CLEAN
SAFE-TO-WASH**

**HANDLES HIGH-
TEMPERATURE MATERIALS**

**AVAILABLE FOR
PROMPT DELIVERY**

**HERE'S THE NEW
ALLIS-CHALMERS**

All-Metal GYRATORY SIFTER

HAS WIDE CHEMICAL INDUSTRY APPLICATION

NEW AND DIFFERENT is this A-C gyrotory sifter for the chemical industry. It's designed after the Low-Head standard gyrotory sifter — used by food and chemical processors all over the country. But *this* sifter is new and different because it is made entirely of metal!

Numerous materials — ranging from pure chemical products (such as barium nitrate) to impure metallurgical products (such as zinc concentrate) — can be efficiently handled by this sifter. *High-temperature* materials can be sifted since this

machine has *no* wooden parts. And cleaning is a simple matter. The entire sifter can be easily and safely washed.

The Low-Head all-metal gyrotory sifter is a compact, high-speed, high-capacity unit holding four to seven sieves. Made of steel and magnesium, it is a strong, lightweight machine. Sieve screens can be silk or metal, with a variety of fine, medium and coarse meshes to choose from.

This new all-metal gyrotory sifter is available now. Send handy coupon for full details.

Low-Head is an Allis-Chalmers trademark.

ALLIS-CHALMERS

Chemical Milling and Processing Equipment

When inquiring check CP 5517 on handy form, pgs. 2-3

ALLIS-CHALMERS, 1151A SO. 70 ST. A 2620
MILWAUKEE, WIS.

☐ Please send handy packet with information on new All-Metal sifter and standard sifter bulletin 06B6124A.

☐ Would like personal visit from A-C representative with details of new sifter.

Name _____

Company _____

Street _____

City _____ State _____

Newark METALLIC FILTER CLOTH

*Combines Accuracy
with Durability*

For many years, processing engineers who demand the best in Metallic Filter Cloth have specified NEWARK. This cloth offers a combination of accuracy and durability — a superior cloth with a long service life.

Newark Metallic Filter Cloth is available in a wide variety of metals and in plain, twill, plain dutch, double twill dutch and other weaves. Our wide experience in the processing field is your assurance of the right cloth for your filtration problem.

Samples are available.

NEWARK
for ACCURACY

Newark Wire Cloth COMPANY

336 VERONA AVENUE

NEWARK 4, NEW JERSEY

When inquiring check CP 5518 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

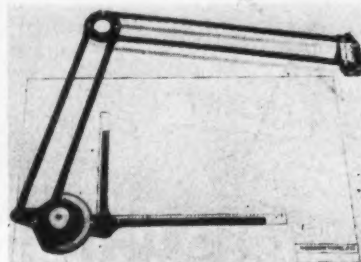
**Top of drawing board
is not obstructed by
drafting machine . . .**

portable instrument is attached at upper right corner

Uses: To aid in making drawings up to 20 x 26".

Features: Portable machine attaches to upper right corner of drawing board, leaves top clear of obstructions to permit use of auxiliary instruments at any point on board.

Description: Drafter is accurately calibrated through eccentric adjust-



Drafting machine

ments. Interchangeable engine-divided scales in all standard graduations are available. Protractor can be locked at any angle.

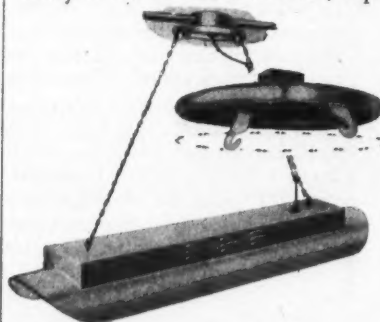
Source: L. G. Wright, Inc., Dept. CP, Box 63EG, Cleveland 21, O. . . or for more information check CP 5519 on handy form, pages 2 and 3.

**Hanger supports fixture
even if mounting screws
work loose . . .**

clips hook on ears of outlet box

Uses: For permanent, safe suspension of fluorescent lighting fixtures.

Features: Hanger is made with a pair of snug-fitting clips which hook firmly to the ears of outlet box, sup-



Hanger permits easy positioning of fluorescent fixture

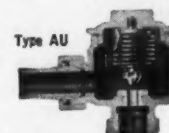
porting fixture in the event mounting screws work loose or rust through.

Description: Equipped with pear-shaped screw holes, hanger may be

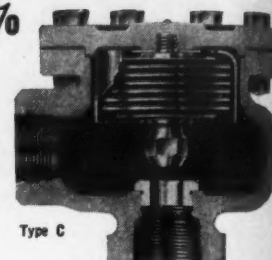
Nicholson Steam Traps

CUT Processing Time 30%

for Food Packer



Type AU
Type AHV



Type C

Records of a recent installation of Nicholson steam traps, by a leading food packer, show they cut cooking time 30%. For example, one operation was shortened from 65 to 45 minutes. Nicholson units keep equipment full of live steam because: 1) they operate on lowest temperature differential; 2) have 2 to 6 times average drainage capacity. Also widely specified for preventing damage to thin gauges; eliminate cold blow in unit heaters; record low for steam waste; and maximum air-venting capacity. 5 types for every application; size 1/4" to 2"; pressure to 225 lbs.

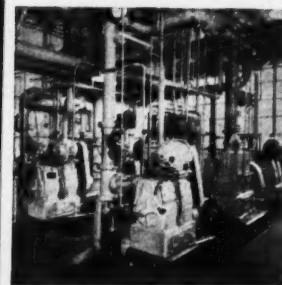
BULLETIN 1047.

W. H. NICHOLSON & CO. 181 Oregon St.
Wilkes-Barre, Pa.
Valves • Traps • Steam Specialties

When inquiring check CP 5520 on handy form, pgs. 2-3

GREATER EFFICIENCY

in Vacuum Operations



High vacuum processing equipment operates at greatest efficiency when Stokes MICROVAC Pumps are used to provide the low pressures required.

Stokes MICROVAC Pumps combine simplicity of design, highest continuous trouble-free service, and lowest operating costs.

F. J. STOKES MACHINE CO., 5980 TANDOR ROAD, PHILADELPHIA 20, PA.



TODAY... Write for the NEW Catalog No. 700. It describes Stokes MICROVAC Pumps... gives schematic drawings of typical processing applications.

F. J. STOKES MACHINE COMPANY

When inquiring check CP 5521 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview



FLEXCO

BELT FASTENERS AND RIP PLATES

**FOR HEAVY
CONVEYOR
AND ELEVATOR
BELTS OF
ANY WIDTH**

FLEXCO Fasteners make a tight, butt joint of great strength and durability . . . distribute the strain uniformly. Operate smoothly over flat, crowned or take-up pulleys. Made of steel, Monel, Everdur and Promal.

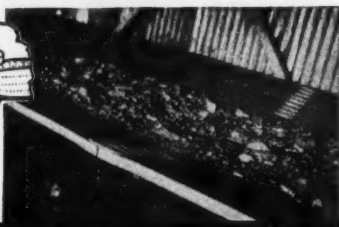
FLEXCO Rip Plates are for repairing and patching damaged belts.

Ask for Bulletin F-100

FLEXIBLE STEEL LACING COMPANY
4649 Lexington St., Chicago 44, Illinois



**Strong, Smooth and
Readily Troughing.
Order From Your
Supply House**



When inquiring check CP 5522 on handy form, pgs. 2-3

**Save on SHUTDOWN
TIME with Scott
Air-Pak - when
toxic hazards threaten**

Instantly ready for use with an ample supply of cool, confidence-inspiring air (not oxygen) the Scott Air-Pak permits rapid, thorough emergency work in toxic areas with minimum production "time-out" required.

In addition, Scott Air-Pak models in Back-Pak, Senior Sling-Pak (illustrated) and Extension Hose Assembly provide selectivity of equipment for particular operational or emergency needs.



Write for full
information on
Scott Air-Paks and
name of nearest
distributor . . .
today!



**SAFETY EQUIPMENT DIVISION
SCOTT AVIATION CORP.**

242 ERIE ST. LANCASTER, N. Y.

In Canada: Safety Supply Company, Toronto, Ont.

When inquiring check CP 5523 on handy form, pgs. 2-3

DECEMBER, 1949

PROCESSING EQUIPMENT

mounted in place without removing screws from outlet box. After screw heads clear holes a 10° turn locks hanger in place with safety clips behind ears in outlet box.

Sliding clips are provided to take chains for suspending fixture. Held in desired position by corrugations in hanger plate, fixture may be swung in any direction by positioning clips. Knockout for Levolver switch is provided.

Hanger is available with two-wire receptacle or with three-wire, twist-lock receptacle. Hanger may also be supplied complete with two 5' chains, hooks, cords and clips.

Source: Type SFH fixture hanger is made by Appleton Electric Co., Dept. CP, 1701 Wellington Ave., Chicago 13, Ill. . . . or for more information check CP 5524 on handy form, pages 2 and 3.

Sanitary removal of particles from the eye . . .

stainless sweep has magnet on one end, loop on the other

Uses: To remove metal particles, cinders, dirt, other foreign materials from the eye.

Description: One end has powerful magnet which picks up iron or steel particles which are not imbedded



Wire loop removes particles from eye

in eye. Other end has wire loop for non-magnetic particles. Each end is protected by metal cap.

Made from stainless steel, instrument is readily sterilized and kept sterile. Sterilization does not affect magnetization.

Source: General Scientific Equipment Co., Dept. CP, 2700 W. Huntingdon St., Philadelphia 32, Pa. . . . or for more information check CP 5525 on handy form, pages 2 and 3.

Is yours a problem of MIXING?



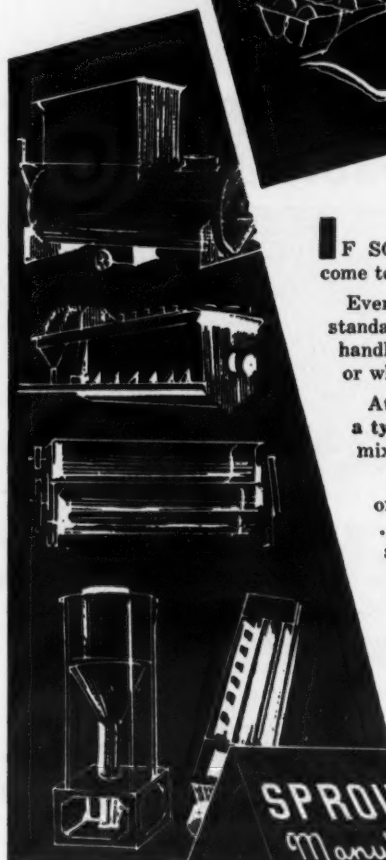
IF SO, let Sprout-Waldron be the first to come to your assistance.

Everyday we are matching customers' standard and specialized requirements for handling foods, dyes, plastics, chemicals—or what have you?

At Sprout-Waldron you will find a size, a type, and a construction for almost every mixing need.

There are verticals, horizontals, batch or continuous, rubber lined or glass lined . . . of wood, carbon steel, nickel steel, stainless steel—even Plexiglas.

Let's get together on your mixing problems today! Send full details to **SPROUT, WALDRON & CO.**, 10 Waldron St., Muncy, Pa.

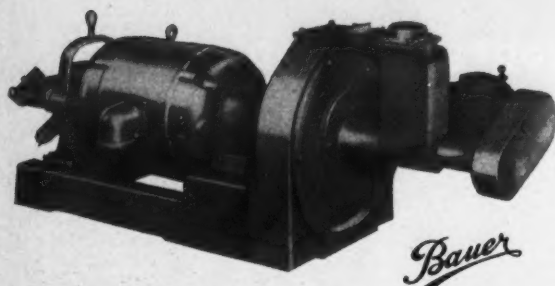


SPROUT WALDRON
Manufacturing Engineers

MUNCY PENNSYLVANIA

When inquiring check CP 5526 on handy form, pgs. 2-3

● **FOR GRINDING,
MIXING, BLENDING**



Illustrated here is a Bauer Single-Disc Attrition Mill with built-in motor, variable speed control, and screw feeder. This is one of numerous types of mills in sizes of 18" to 36".

In this class of mill, one set of plates rotates while the other set remains stationary. Many designs of plates are available for routine or special operations. Plate clearance can be readily set and maintained by means of an adjusting screw.

Bauer Single-Disc Mills are widely used in the chemical processing industries for grinding and intensively mixing many products. Powders are thoroughly dispersed and blended, resulting in complete homogeneity.

The mills are illustrated and described in Bulletin No. A-6. A copy is yours for the asking; also Catalog No. 50 which covers the complete line of Bauer processing machinery. Write, phone, or telegraph your request while the subject is on your mind.

THE BAUER BROS. CO.

1728 SHERIDAN AVENUE

SPRINGFIELD, OHIO

When inquiring check CP 5527 on handy form, pgs. 2-3

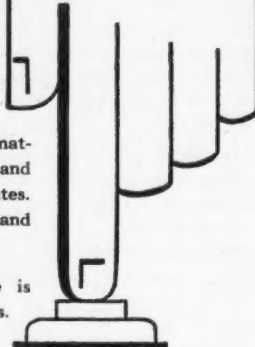
NOW!

Push-button Filtration

• It's easy with Sperry's EHC-L Closing Device. Now only two adjustments are necessary to completely and automatically operate a filter press. Speeds up production, saves time and money.

One person—man or woman—can control the largest press. The electric-hydraulic unit automatically actuates the head, forward and back—pushes back the empty plates. Hydraulic valves are eliminated and wear on filter cloths is reduced.

The EHC-L Closing Device is easily adapted to any filter press. Write for full details today.



D. R. SPERRY & COMPANY — Batavia, Illinois

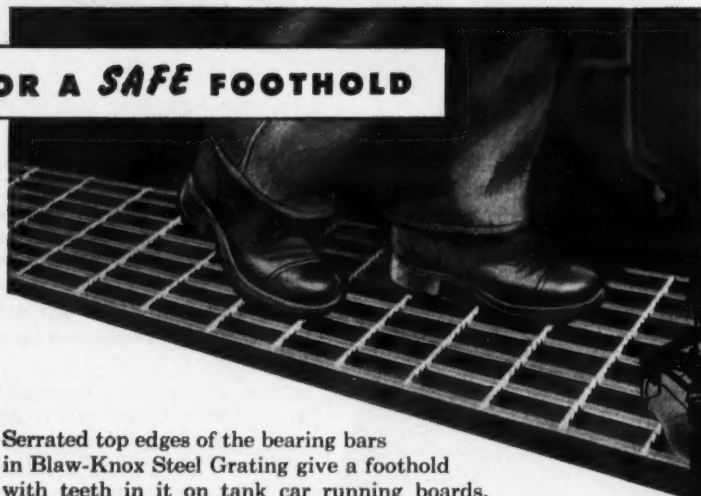
Filtration Engineers for over 50 years

Eastern Sales Representative—H. E. Jacoby, M. E.—205 E. 42nd St., New York 17, N. Y.—phone: MUrray Hill 4-3581.
Western Sales Representative—B. M. Pilshashy—833 Merchants Exchange Bldg., San Francisco 4, Cal.—phone: DO 2-0375.



When inquiring check CP 5528 on handy form, pgs. 2-3

FOR A SAFE FOOTHOLD



Serrated top edges of the bearing bars in Blaw-Knox Steel Grating give a foothold with teeth in it on tank car running boards, brake steps and platforms.

Easy installation, easy replacement when damaged, long life and ruggedness, and open self-cleaning construction are valuable additional features.

Quick delivery to meet your requirements.
Send for Bulletin No. 2228

**BLAW-KNOX DIVISION
of Blaw-Knox Company**

2076 Farmers Bank Bldg., Pittsburgh 22, Pa.
Representatives in Principal Cities



**BLAW-KNOX
ELECTROFORGED STEEL
RUNNING BOARDS,
BRAKE STEPS, AND
PLATFORMS
FOR TANK CARS**

When inquiring check CP 5529 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Oxidize carbon monoxide to
the dioxide with aid
of catalysts . . .**

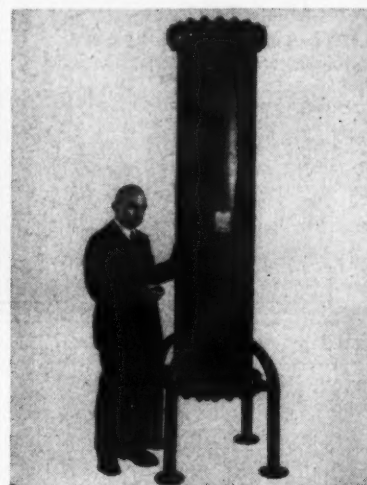
purifiers are also available for catalytic oxidation of hydrogen, for hydrogenation of carbon monoxide

Uses: For the catalytic hydrogenation and oxidation of gases.

Features: Sizes of purifiers range from 200 cfh to 100,000 cfh. It is claimed that catalysts last indefinitely, and have resale value in the event of poisoning.

Description: Development of catalysts has resulted in 3 new purifier models.

(1) Model M Deoxo purifier provides for the catalytic combination of oxygen and carbon monoxide to form carbon dioxide in gases containing no hydrogen. For complete reaction, gas temperatures must be maintained at 100°C or higher.



Purifier for the hydrogenation
and oxidation of gases

May be used for the catalytic oxidation of carbon monoxide to carbon dioxide in a hydrogen-rich atmosphere, if gas is maintained between 120 and 160°C. For a complete reaction, a minimum of 2 volumes of oxygen for each volume of carbon dioxide is required. Excess oxygen reacts with hydrogen to form water vapor.

Model M may be used for the cata-

lytic oxidation of hydrogen in oxygen gas. Temperature must be 120°C or higher.

(2) Model DM provides for the simultaneous catalytic combination of carbon monoxide and hydrogen to form carbon dioxide and water vapor. Temperature is maintained between 120 and 500°C. Oxygen content of at least 1/2 the sum of carbon monoxide and hydrogen must be present.

(3) Model E provides for the catalytic combination of carbon monoxide and hydrogen to form methane and water vapor. Gas must be maintained above 200°C for a complete reaction.

Source: Purifiers are made by Baker and Company, Dept. CP, East Newark, N. J. . . . or for more information check CP 5530 on handy form, pages 2 and 3.

**Speed, grip and versatility
Identify universal chuck;
3 reversible jaws . . .**

work locked in place 10 times faster; unit attaches direct to lathe spindles or mounts on bench

Uses: Three-jaw universal chuck for: 1) direct attachment to 1-1/2"-8 thread lathe spindles, 2) use on milling machine dividing head, 3) conversion to a sturdy, safe vise or machining fixture when bolted by means of threaded mounting plate to table of drill press or milling machine,

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

or 4) conversion to an effective vise for holding cylindrical pieces, when mounted on work bench.

Features: Combines speed of lever-operated chuck with powerful grip of pinion-operated types. Lathe machinists can lock work in place as much as 10 times faster than by conventional chuck, manufacturer reports.

Solid reversible jaws where two complete sets are normally required: one for inside, one for outside chucking. Adapter plate is eliminated by threading for direct attachment to 1-1/2"-8 thread lathe spindles.

Description: By inserting end of wrench-stem into one of six easily accessible holes in outside diam. of scroll, and rotating scroll rapidly by lever action, work is locked in place quickly. To secure final tight grip of jaws, slip the end of wrench stem into one of six additional holes adjacent to scroll so that a specially-designed pinion on wrench engages bevel gear teeth at back of scroll. Slight turn of wrench rotates scroll, resulting in powerful grip. Chuck's 2" body-thickness is said to be ideal for use on milling machine dividing head. Net weight of chuck is 8-1/2 lbs. Three reversible jaws are heat-treated steel with precision-ground bites and steps. Body, of 5" diam., is finished semi-steel; scroll is durable alloy with rugged spiral thread and teeth.

Accuracy, when new, guaranteed by manufacturer to center within .003" total indicator reading. Accessory threaded steel mounting plate optional. It is threaded 1-1/2"-8 thread to receive chuck, and is slotted for bolting to machine table or work bench.

Source: Westcott Chuck Company, Dept. CP, Oneida, N. Y. . . . or for more information check CP 5531 on handy form, pages 2 and 3.

Turn on lights and alarms in hazardous areas with enclosed switch . . .

designed to accommodate mercury tubes to make and break electrical connections

Uses: Designed to accommodate mercury tubes to make and break electric circuits. Listed by Underwriters Laboratories for use in hazardous (Class 1, Group D) locations in ambient temperatures up to 155°F. Used to turn on lights and operate alarm systems from remote locations.

Features: Permits transmission of signals from points where an open switch cannot be used. Body and cover of switch of cast aluminum.

Description: Body is provided with sturdy mounting flanges, and measures approximately 9 1/2" long x 5 1/4" deep. It is provided with a threaded hub to accommodate a stainless steel operating shaft on which are mounted the two mercury tube electrodes.

Tubes are actuated by a tilting motion of this shaft. They are connected to an internal terminal block by individual flexible wire leads. All terminal connections are easily accessible when cover is removed. A 1/2" threaded outlet is also provided for conduit connection.

Source: Switch Box ST-5500 is available from Shand & Jurs Co., Berkeley, Calif. . . . or for more information check CP 5532 on handy form, pages 2 and 3.

Pointers on Pumps

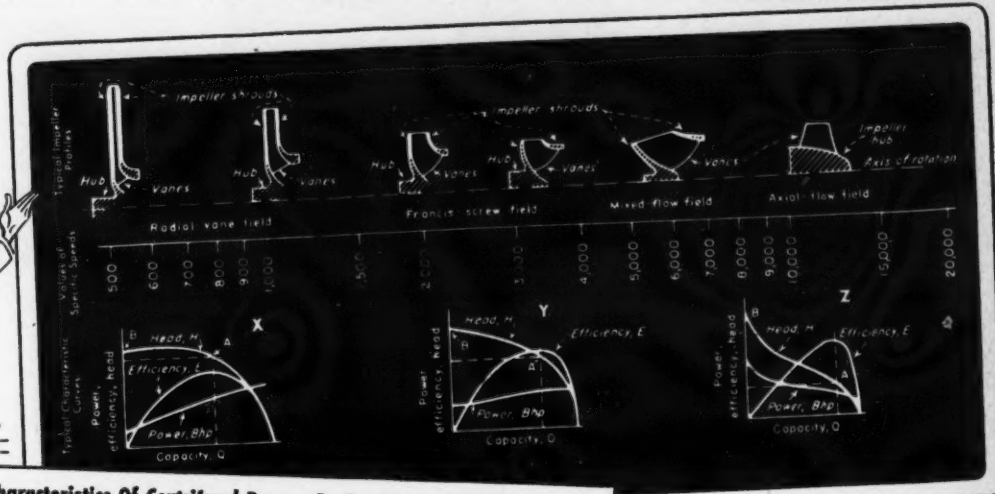
How Do Head, Capacity and Speed Affect Centrifugal Pump Design?

The head, capacity and speed for which a particular centrifugal pump is designed determine its "Specific

Speed." Pumps having the same "Specific Speed" will have like proportions and characteristic curves.

The illustration shows several typical pump-impeller profiles, ranging from the low specific speed radial flow on the left to the high specific speed propeller design on the right,

each design being placed in its proper position with relation to the specific speed scale. Below the scale, characteristic curves X, Y and Z indicate the hydraulic characteristics of three pumps, each designed for a specific speed corresponding to its position on the specific speed scale.



General Characteristics Of Centrifugal Pumps, By Specific Speed Ranges

Low Specific Speed — Diagram X

Small rise in head from point of maximum efficiency "A" to shut-off "B".
Wide capacity range at high efficiency.
Rapid decrease in bhp from point of efficiency "A" to shut-off "B".

Medium Specific Speed — Diagram Y

Steeper rise in head from "A" to "B".
Moderate capacity range at high efficiency.
Nearly constant bhp from "A" to "B".

High Specific Speed — Diagram Z

Very steep rise in head from "A" to "B".
Narrow capacity range at high efficiency.
Rapid increase in bhp from "A" to "B".

These basic characteristics may be modified to obtain certain desirable features. For example, although boiler feed pumps have low specific speed, they require a steadily rising head-capacity curve — not one that droops toward shut-off, as shown. There can be any number of pump designs in-between and beyond the few typical ones illustrated here.

You'll Find the Right Pump in the Worthington line — the world's most complete. Another reason why *there's more worth in Worthington* is the expert technical advice, backed by over 100 years of experi-

ence, that is always available to you. Just contact your nearest District Office, or write to **Worthington Pump and Machinery Corporation, Centrifugal Pump Division, Harrison, New Jersey.**

WORTHINGTON



**THE WORLD'S
BROADEST LINE
ASSURES YOU THE
RIGHT PUMP FOR
EVERY JOB**



When inquiring check CP 5533 on handy form, pgs. 2-3

COMPACT

Series "K" Roper Pumps

EASY TO INSTALL
AND APPLY ON A
WIDE RANGE
OF JOBS

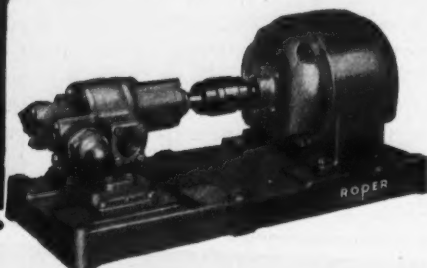


Fig. 26K Motor-Driven Pump Unit with built-in relief valve head is available in all sizes. Also Fig. 25K with head less relief valve. Includes bedplate and coupling to suit standard motor frames. Furnished with or without motor.



Fig. 1K Pump Head with packed box, built in 5, 10, 15, 20, 30, 40, and 50 g.p.m. sizes. Fig. 2K has built-in relief valve. Mechanical seal available on all models.

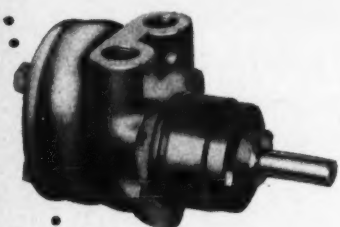


Fig. 17K Pump Head with mechanical seal. Capacities $\frac{3}{4}$, $1\frac{1}{2}$, and 3 g.p.m. sizes. Packed box is available. Fig. 18 K is equipped with built-in relief valve.

Yes, you can save space and reduce power costs with Roper Series "K" Pumps. They are very compact in design, yet sturdy enough to handle a wide range of jobs... pressure lubrication, hydraulic service, fuel supply, or transfer work pumping clean liquids at capacities up to 50 g.p.m.

They are self-lubricated by the liquid pumped... handle total suction lifts up to 25 feet... come equipped with mechanical seal or packed box... with or without relief valve.

Venturi suction and discharge principle provides properly proportioned distribution of liquid pumped, thereby minimizing energy loss through turbulence, cavitation, or friction.

Series "K" pumps are available in $\frac{3}{4}$ to 50 g.p.m. sizes, pressures to 150 p.s.i.

Write for Latest Bulletin

GEO. D. ROPER CORPORATION
752 Blackhawk Park Avenue
ROCKFORD, ILLINOIS

ROPER
Rotary Pumps

When inquiring check CP 5534 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

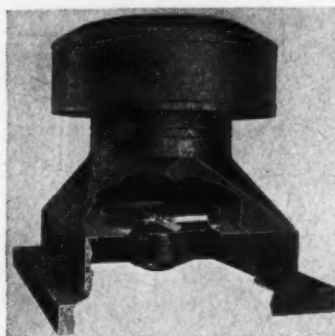
Roof ventilators have
wide range of
capacities...

dampers, inverted-cone air guide
reduce friction losses

Uses: For general ventilation or
to cool hot areas.

Description: Ventilators are supplied as either gravity units or with fans. Throat sizes are 12, 18, 24, 30 and 36". Capacities of powered models range from 630 to 25,700 cfm.

Standard construction employs galvan-



Roof ventilator

ized steel, but other metals can be specified if desired. Units are described in Bul. 337.

Source: The Swartwout Co., 18511 Euclid Ave., Cleveland 12, O. . . or for more information check CP 5535 on handy form, pages 2 and 3.

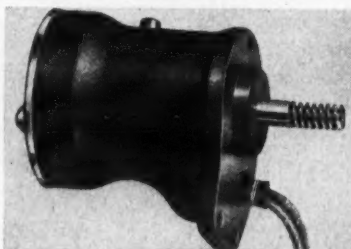
Motor weighs 8.3 ozs,
delivers 1/100 hp...

totally enclosed, single-phase unit
is 2" high

Uses: For explosion-proof service
in operating small valves, pumps, actuators, and similar items.

Features: Weighs only 8.3 oz., yet
delivers 1/100 hp.

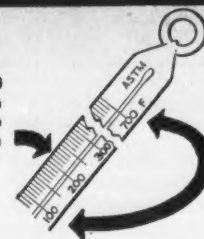
Description: Single-phase, squirrel-cage AC motor with permanent



1/100 hp motor

capacitor is totally enclosed. Operates from 115 volt, 400 cycle outlet. It has copper rotor and a wound field which is dipped, baked and wrapped to give protection under most extreme conditions.

QUICK! Heats 200 ml. of water from room temperature to boiling point in 5 minutes.



CONVENIENT! Dial settings from 1 to 7 provide "finger tip" control of temperature, approximating 100° to 700° F.

Our Thermostatically Controlled "Kamatik" Lab Hot Plate

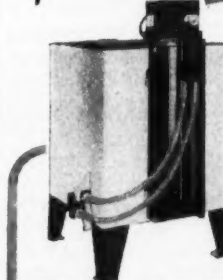
Controlled by sturdy positive bi-metallic thermoregulator with heavy duty contact points. Nickel-chromium alloy wire heating element embedded in moisture-proof "Kamlrok" insulation. Top is 6" in diameter; housing of heavy gauge metal. Efficient, economical to operate, built for long service!

20002—KAMATIK HOT PLATE. With support clamp, 6-foot cord and plug. For 115 volt A.C. 13.00

Write, teletypewriter, wire or phone Dept. CPP-12, our nearest office-warehouse

WILL CORPORATION
LABORATORY APPARATUS AND CHEMICALS
ROCHESTER 3, N. Y. • NEW YORK 12, N. Y.
SOUTHERN SCIENTIFIC CO. INC. ATLANTA 3, GA.
BUFFALO APPARATUS CORP. BUFFALO 5, N. Y.

When inquiring check CP 5536 on handy form, pgs. 2-3



Here's the ideal way to feed chemical solutions. Just "fill 'er up", set the rate, and the OMEGA Precision Solution Feeder does the rest. It has no valves, diaphragms, or pump... feeding is by gravity and is accurate within 1%. Feeding range

100 to 1. Ratio .08 to 8 GPH on Size #50. Size #200, .32 to 32 GPH. Units up to 500 GPH on special order. For complete information and Bulletin 60-E1B, address Omega Machine Company (Division of Builders Iron Foundry), Providence 1, Rhode Island.

THE LAST WORD IN FEEDERS
OMEGA

When inquiring check CP 5537 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

"SNAP-IN" LINERS...

Longer Life for Metal Containers



**QUICKLY, EASILY
APPLIED . . .**

"SNAP-IN" LINERS are readily dropped into place and securely held there by snapping the lid over the container rim. Lid (rubber lined) is then fastened down with adjustable fasteners, forming a leakproof, rubber-to-rubber seal. Liner can be quickly removed at any time.

GOODALL "SNAP-IN" Loose Rubber Liners are made to fit standard size metal drums, vats, kettles, etc., for lasting protection against acids and chemicals.

You ship just one container to our factory (a big saving over other methods) for use as a pattern. With this, we can make liners for any number of containers of identical size and shape.

"SNAP-IN" LINERS are custom made, with the rubber especially compounded to handle the specified product. Thousands now in use demonstrate their practicability and economy.



Contact Our Nearest Branch for Further Details and Prices.



GOODALL RUBBER COMPANY

GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.
Branches: Philadelphia • New York • Boston • Pittsburgh • Chicago • St. Paul • Los Angeles
San Francisco • Seattle • Salt Lake City • Denver • Houston • Distributors in Other Principal Cities

When inquiring check CP 5538 on handy form, pgs. 2-3



STRAINERS AND FILTERS AVAILABLE IN ALL TYPES AND SIZES

A longer lasting, accurately made filter or strainer increases your profits at every application. The skilled craftsmanship and selected quality materials used in the manufacture of Cleveland Wire Screen is your yardstick for discriminating buying. Custom designed strainer elements are produced in small or large production runs from Chrome Nickel or Copper Alloys. Write for Strainer and Filter Bulletin No. 7.

A CLEVELAND WIRE SCREEN FOR EVERY PURPOSE

THE CLEVELAND WIRE CLOTH & MFG. CO.
3574 E. 78 STREET • CLEVELAND 5, OHIO

When inquiring check CP 5539 on handy form, pgs. 2-3

DECEMBER, 1949

PROCESSING EQUIPMENT

Unit is 2" high (excluding worm gear) with a circular pilot .875" in diameter.

Source: Model 1201 motor is built by Electro-Aire, Inc., Dept. CP, 11439 Vanowen St., North Hollywood, Calif. . . . or for more information check CP 5540 on handy form, pages 2 and 3.

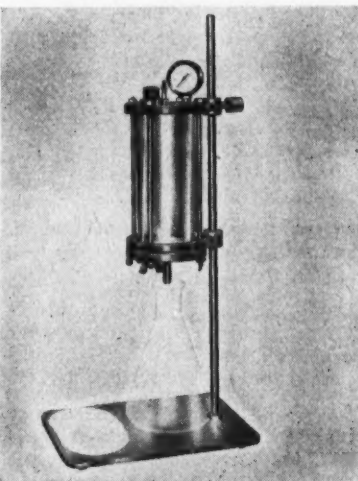
Use any type medium in lab filter . . .

unit has capacity of 1.3 liters, filtering surface 9.62 sq in

Uses: As an all-purpose filter for applications requiring up to 1.3 liters capacity.

Features: Accommodates any type filter medium. Construction permits easy refill without disassembling. Glass cylinder of 45 oz. capacity is furnished to allow full view of product during filtering process.

Description: Cylinder-type filter is precision constructed of either stain-



Lab filter has convenient height adjustment

less steel or hard rubber; also made in brass (nickel or silver plated).

Filtering surface is 9.62 sq. in. and filter disc diameter is 4 1/8". Overall height is 27". Simple thumb screw adjustment permits raising or lowering of filter to accommodate vessels of various heights. Equipment includes pressure gauge for 0-60 psi.

Asbestos filter sheets possessing low calcium and iron content are available if desired.

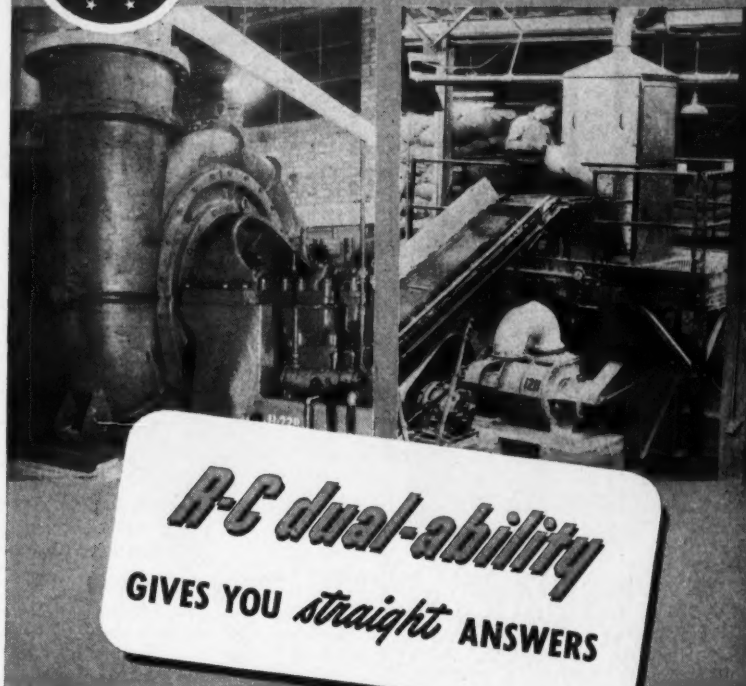
Source: Model 10 Laboratory Filter is made by Ertel Engineering Corp., Dept. CP, 40 Front St., Kingston, N. Y. . . . or for more information check CP 5541 on handy form, pages 2 and 3.



Motor-driven R-C
Centrifugal Blower,
24" type OIB, ca-
pacity 19,600 CFM.

ROTARY

Type RCD Rotary Pos-
itive Blower, used for
conveying. Capacity
1,800 CFM.



Centrifugal or Rotary Positive? Which type of air or gas handling equipment is best suited to your needs? The answer depends upon the specific job—and you'll get the cold, unbiased facts from R-C dual-ability.

We can give you this *dual choice* because we build both—and we are the only blower manufacturers who do so. Further, our range of sizes, capacities, pressures and other characteristics is so wide that we can usually match or very closely approximate even exacting specifications.

By such fitting of equipment to the requirements of the job, you get superior performance, dependability and long life from your R-C units—the natural result of 95 years of blower-building experience.

ROOTS-CONNSVILLE BLOWER CORPORATION

912 Richland Avenue, Connersville, Indiana

ROOTS-CONNSVILLE



BLOWERS • EXHAUSTERS • BOOSTERS • LIQUID AND VACUUM PUMPS • METERS • INERT GAS GENERATORS

* * ONE OF THE DRESSER INDUSTRIES * *

When inquiring check CP 5542 on handy form, pgs. 2-3

TRICKLE

OR



from a quart to 300 gallons per hour

Illustrated above is the new Streamline Precision Water Still—and we hastily add this will *not* run a 300 gallon per hour test (these giants are made expressly for very large scale operations.) But this new model will run from 1 to 4 gallons per hour which is adequate for the average laboratory. It is extremely compact, automatic in operation, steam, gas or electric heated, and suitable for hard water. Liberation of gases is complete. Made of stainless steel with "Concentube" condenser. And about that 300 gallon per hour still—*Precision* makes them. For specific information, please write. And for more information about *this* Water Still send for bulletin.

Precision Scientific Company

3737 W. CORTLAND ST. . . CHICAGO 47, ILL. U.S.A.
Scientific Research & Production Control Apparatus

OFFICES IN CHICAGO, NEW YORK, PHILADELPHIA AND SAN FRANCISCO

When inquiring check CP 5543 on handy form, pgs. 2-3

Page 82

PROCESSING EQUIPMENT

Pouring of acids and alkalis made safer by spout . . .

prevents spilling, splashing, and "after-drip"

Uses: Pouring spout for use with standard 5-pint acid bottles or 1-gallon jugs.

Features: Provides convenience and safety by preventing spilling, splashing, and "after-drip". Vents air into the container as the liquid is poured out. Adaptable to fit all types of acid bottles now used; has closure cap.



Pouring spout prevents spilling, splashing, "after-drip"

Description: Spout is made of polyethylene, a plastic that is resistant to all ordinary acids and alkalis, as well as most organic compounds under 60°C. It is furnished with a washer, making its adaption to all types of standard containers possible.

Source: Fisher Scientific Company, Dept. CP, 717 Forbes St., Pittsburgh 19, Pa. . . or for more information check CP 5544 on handy form, pages 2 and 3.

Combine oil cup and gauge in one visible unit . . .

transparent shatterproof plastic bottle has dust-tight filler cap; holds 1, 2, 4 or 8 ounces

Uses: Visible oil-cup-and-gauge combination for replenishing bearings, transmissions and crankshaft cases, and for periodically checking oil levels.

For installation outside of housing, on opposite side of wall, around a corner, or at any convenient distance from machine, and where surrounding temperature does not exceed 170°F.



Visible oil cup and gauge

Features: Shatter-proof transparent plastic bottle. Heavily-plated metal parts for corrosion resistance and cleaning ease. Self-closing, dust-proof filler cap. Quickly installed.

Description: In one, two, four and eight-ounce capacities. Heavy steel base is cemented and roll-clinched to plastic reservoir to prevent leakage.

Source: Trico Fuse Mfg. Company, Dept. CP, 2948 N. Fifth St., Milwaukee 12, Wis. . . or for more information check CP 5545 on handy form, pages 2 and 3.

Pre-installing stoker parts in boiler simplifies final assembly . . .

boiler-stoker units are available in 10 sizes; have steam radiation capacities to 8,500 sq. ft.

Uses: For generation of heating or process steam.

Features: Stoker iron work is pre-installed in the boiler furnace, simplifying final assembly work and reducing installation time and expense.

PIPE MARKERS



anyone
can use—
everyone
can read

QUIK-LABEL Pipe Markers conform to American Standards Association Pipe Identification System. QUIK-LABELS come on handy cards . . . stick without moistening. Names of materials printed in large black letters on correct ASA background colors. CAN BE READ UP TO 75 FEET. Markers for over 140 materials, including all materials listed in ASA Standard A13, available on Brady Stock Cards. Specialty made to your order. QUIK-LABEL Pipe Markers are Silicone Plastic coated to resist dirt, grease, fumes, moisture . . . indoors or out. Replace slow and costly painting and hand stenciling. Exclusive Starter-Strip automatically releases part of label for fast peeling. QUIK-LABELS mark your pipes so that anyone who can read will know what's in them. **QUIK-LABELS leave no room for doubt . . . or tragedy.** Write for useful literature and FREE SAMPLES today.

**FREE
SAMPLES**

W. H. BRADY COMPANY Established 1914

Manufacturers of Self-Sticking Tape Products

Chippewa Falls 10, Wis.

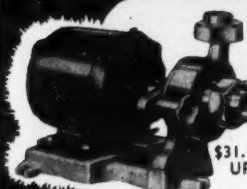
Distributors in 125 cities

When inquiring check CP 5546 on handy form, pgs. 2-3

Stainless Steel and Nickel Alloy

THOMSEN

Equipment for the Processing Industries



Sanitary & Brine Pumps

Direct drive and heavy duty coupling types. Smooth, steady flow. Higher production, lower cost. Sanitary rotary seal. Precision workmanship means less wear and longer service. Easier to keep clean. Write for descriptive data giving capacities, prices, etc.

\$31.15 UP

Valves and Fittings

Complete line nickel alloy and stainless steel. Finest of workmanship in every detail. No pit-holes or rough surfaces. Highly polished to mirror smoothness. Easily cleaned.

Line Filters and Tubing

Filter barrels of white metal or stainless steel. 1" 1 1/2" and 2" 1,000 to 4,000 lbs. per hour capacity. Stainless steel and nickel alloy. Tubing, 10' lengths, 1" to 4" diam. All finishes. Ask your jobber or write for descriptive literature.

L. C. THOMSEN & SONS, Inc.
KENOSHA, WISCONSIN

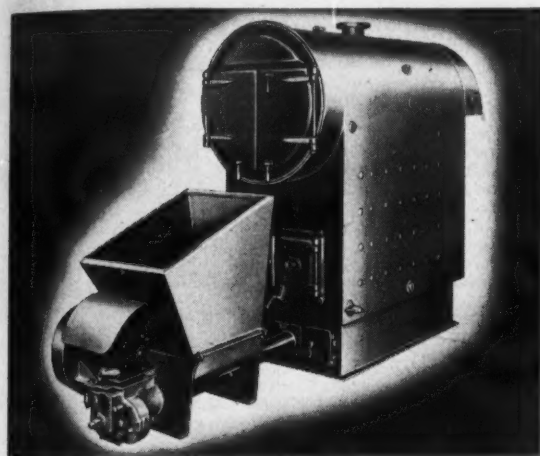
BE WISE BUY WISE

When inquiring check CP 5547 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

Description: "Unibilt" boiler-stoker combinations are available in 10 sizes, with steam radiation capacities ranging from 2,190 to 8,500 sq. ft. Clean-out doors are provided in front and rear of the base.



Boiler-stoker unit

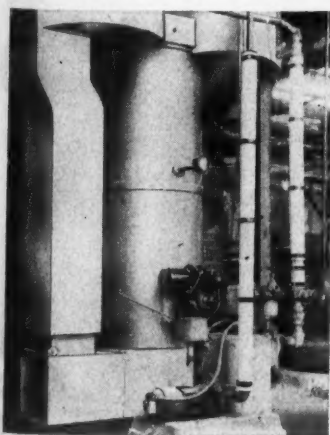
Stoker hearth and retort are factory-installed in the boiler furnace. After boiler has been set on location, stoker driving mechanism is readily attached.

Units are further illustrated and described in manufacturer's Bulletin No. SF-1.

Source: Both boiler and stoker are products of The Brownell Company, Dept. CP, 442 N. Findlay St., Dayton 1, O. . . or for more information check CP 5548 on handy form, pages 2 and 3.

Dries lacquers, finishes, any material requiring up to 500°F temp . . .

direct gas or oil-fired heating unit recirculates air up to desired temp, then discharges steadily



Heat unit for process work

Uses: Direct-fired industrial heating unit for drying lacquers, finishes or any material requiring temperatures up to 500°F.

Manufacturer suggests suitability for drying towers, spray booths and drying rooms.

Features: Self-contained. New model recirculates its air until desired temperature is reached. Unit then discharges continuously at required temperature.

Description: Primary unit is gas or oil-fired heater of 300,000 or 550,000 Btu's per hr, employing forced air circulation. Trade name: Thermobloc.

Source: Prat-Daniel Corporation, Dept. CP, East Port Chester, Conn. . . or for more information check CP 5549 on handy form, pages 2 and 3.

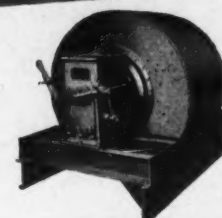
You Can Cut Today's High Production Costs with

STURTEVANT EQUIPMENT



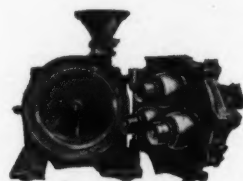
AIR SEPARATOR

For separation of fines to 325 mesh and finer. Increases output from 25% to 300% . . . lowers power costs by 50%. For years, this separator has been the standard in the cement industry.



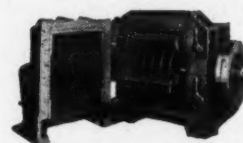
DUSTLESS BLENDER

Four-way mixing action assures a thoroughly blended product. Open-door accessibility permits easy cleaning. Available in many mixing capacities for 1/4 ton per hour and up.



RING-ROLL MILLS

For medium and fine reduction (10 to 200 mesh), hard or soft materials. Very durable, small power. Operate in closed circuit with Screen or Air Separator. Open-door accessibility. Many sizes. No scrapers, plows, pushers, or shields.



SWING-SLEDGE MILLS

For coarse and medium reduction (1" to 20 mesh). Open-door accessibility. Soft, moderately hard, tough or fibrous substances. Built in several types and many sizes.



JAW CRUSHERS

For coarse, intermediate and fine reduction of hard or soft substances. Heavy or light duty. Cam and Roller action. Special crushers for Ferro-alloys. Several types, many sizes.

Sturtevant equipment, such as illustrated, helps you overcome high labor and production costs by increasing output. In addition, their rugged construction assures long life with minimum maintenance. It will pay you to investigate these machines. Write for information.

STURTEVANT MILL COMPANY

119 CLAYTON STREET, BOSTON 24, MASSACHUSETTS

Designers and Manufacturers of: CRUSHERS • GRINDERS • SEPARATORS
CONVEYORS • MECHANICAL DENS and EXCAVATORS • ELEVATORS • MIXERS

MAIL COUPON TODAY!

STURTEVANT MILL COMPANY
119 Clayton Street, Boston 24, Mass.

Gentlemen:
Please send me your catalog. I am especially interested in _____

Name _____

Street _____

City & State _____

When inquiring check CP 5550 on handy form, pgs. 2-3

Fabricated by Kirk & Blum



(Above)
**SPECIAL MONEL TANK
FOR TIRE MANUFACTURER**

From the tank above — built for pressure testing inner tubes — to face powder hoppers . . . Kirk & Blum fabricates many types of sheet metal in a wide range of products and parts. All types of standard and specially-built metal working machinery are at your service in the Kirk & Blum shops.

Whether your sheet metal fabrication work is large or small . . . one unit or a thousand . . . or steel, galvanized, monel, inconel, aluminum, stainless steel or other materials up to 3/8", call on Kirk & Blum for expert work and delivery as promised. Write for new booklet "Sheet Metal Assemblies".



Face Powder Hopper
for Drug Manufacturer

KIRK & BLUM

Make Your Blueprints
Come To Life

**THE KIRK & BLUM MFG.
COMPANY**
2833 Spring Grove Ave.
Cincinnati 25, Ohio

When inquiring check CP 5551 on handy form, pgs. 2-3

J&C

Zenith Continuous Pulp Presses
Now Available in 3 Models

New ZM Press

The ZM Continuous Pulp Press is the answer to the demand for a press of smaller capacity, but retaining the high efficiency and all of the outstanding features of the parent press.

ZL Press

Zenith® Model ZL Pulp Presses are being used for dewatering, beet pulp, pineapple, tomato pomace, corn germ and fibre, vegetables, brewers grain, cherries, citrus fruits, fish, paper pulp, and many other materials, assuring a direct cake of uniform consistency.

100% continuous . . . from storage bin to pressed cake, the ZL Press dewateres up to 26 tons of wet pulp per hour.

ZENITH ADVANTAGES
Closed construction
Easily installed
Minimum floor space
Good plant housekeeping

Model ZP . . . our smallest press with less capacity than the ZM or ZL but having a very high efficiency.

©Copyrighted
**Patents applied for

JACKSON & CHURCH COMPANY • SAGINAW, MICHIGAN

When inquiring check CP 5552 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Hold wire, tubing,
rods securely . . .**

rubber-covered clips, fasteners prevent chafing, slipping

Uses: To prevent slipping, chafing, cutting and rattling of wire, tubes, pipe, cable, rods, etc.

Features: Rubber covering reduces many hazards formerly connected with clips, clamps, fasteners, connectors, etc.

Description: Items are available in variety of shapes and sizes. Exposed metal ends can be parkerized, zinc-plated, cadmium-plated, lacquered or enameled.

All items are produced in standardized sizes. Special shapes and sizes may be specified by user.

Source: Automotive Rubber Co., Inc., Dept. CP, 8601 Epworth Blvd., Detroit 4, Mich. . . or for more information check CP 5553 on handy form, pages 2 and 3.

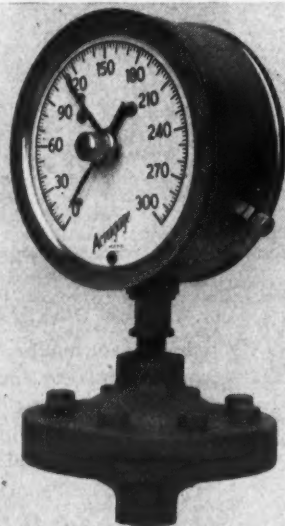
**Bleed air bubbles from
pressure gauges to
cut inaccuracy . . .**

capillary bleeder purges air continuously from system

Uses: To purge air from Bourdon tube pressure gauges used on sealed hydraulic systems or other applications where air bubbles in Bourdon tubes cause inaccuracies.

Features: Bleeder is built into gauge, purges air completely at all times.

Description: Illustration shows diaphragm-protected pressure gauge



Diaphragm-protected pressure gauge has integral capillary bleeder equipped with built-in capillary bleeder.

It is reported that gauge inaccuracies

DAY
"Autoclean"
DUST FILTER

assures
CONSTANT AIR VOLUMES

Back pressures and air volumes vary in filters where sections must be shut down for cleaning, (line A). The automatic-continuous reverse jet cleaning action of the DAY "Autoclean" eliminates sectional cleaning shutdowns. When the DAY "Autoclean" is started, back pressure rises slightly, then levels off and remains constant, (line B). Such uniform back pressure assures the constant



air volumes necessary for maximum dust collection efficiency.

Here are

*other important
advantages*

- Continuous-Automatic Operation
- High Cleaning Efficiency
- High Air to Cloth Ratio
- High Filtering Efficiency

Licensed by H. J. Hersey, Jr.

Write-to-DAY for
Bulletin No. 491

The DAY Company

852 3rd Avenue, N. E., Minneapolis 13, Minn.
IN CANADA: Box 70, Fort William, Ontario
Branch Plants in Ft. Worth, B. Ralston and Wilkes

When inquiring check CP 5554 on handy form, pgs. 2-3

**Brass • Bronze
Stainless • Monel
Alloy Steels
BOLTS NUTS
STUDS**

Here's a full line of bolts, nuts and studs in all types of metals. Accurately threaded to assure a uniform Class 3 Fit, Pawtucket products are made in standard dimensions or to your specifications.

BETTER BOLTS SINCE 1882

Use Headed and Threaded Fasteners for Economy and Reliability

THE BOLT MAN
PAWTUCKET
MANUFACTURING COMPANY
327 Pine Street Pawtucket, R. I.
THE PLACE TO SOLVE YOUR BOLT PROBLEMS

When inquiring check CP 5555 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

AIR DRILLS to fit the task!

When the task can best be done by an abundant flow of smooth power, use Ingersoll-Rand Air Drills. Whether it's running a large tap as shown above, or drilling small holes in very light sheet metal, there is an I-R Air Drill available to handle your job.

Over one hundred different sized I-R Air Drills, all realistically designed and precision built, are ready and waiting to handle practically any drilling, reaming, or tapping job you encounter.

Equip your workmen with I-R Air Drills today. A call to your Ingersoll-Rand branch office will bring you the facts on the complete line of I-R Air Tools—ask one of our Air Tool Specialists to show you how Air Tools now pay for themselves nearly twice as fast, and enable the workman to do more work with less effort.

Ingersoll-Rand
11 Broadway, New York 4, N. Y.

When inquiring check CP 5556 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

of as high as 4% result when air is present in the sealed tube. Maker states that filled, sealed pressure tubes always contain some air, thus require a bleeder to maintain accuracy.

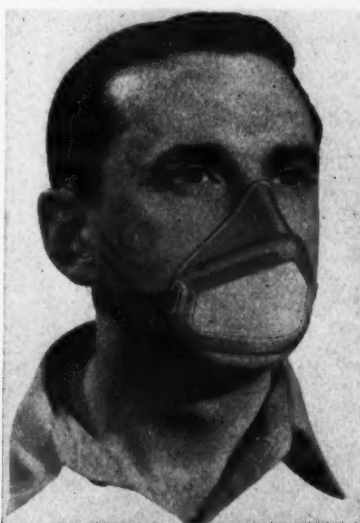
Source: The Clapp Instrument Co., Dept. CP, Tracy Court, Webster, Mass. . . or for more information check CP 5558 on handy form, pages 2 and 3.

Filter non-toxic dust with 1-oz. mask

honeycomb latex filter bars dust as small as 1/25000"

Uses: For protection against non-toxic nuisance dusts.

Features: Weighs only 1 oz. Construction is simple, consisting of but 4 interlocking parts. Headbands are molded of natural rubber that is non-toxic and non-irritating. All parts can be sterilized by washing in warm, soapy water and immersing in a mild formaldehyde solution.



Dust mask excludes tiny particles

Description: Mask filter is a honeycomb of whipped foam latex ventilated by hundreds of tiny interconnecting cells that allow passage of air but keep out non-toxic nuisance dusts as small as 1/25000".

Inner and outer frames are of du Pont polythene plastic so flexible they adjust themselves to contours of any face, yet strong enough to withstand all normal usage.

Source: "Flex-a-Foam Filter Masks" are made by Goggle Parts Co., Dept. CP, 1468 West 9th St., Cleveland 13, Ohio . . . or for more information check CP 5559 on handy form, pages 2 and 3.

Here's Equipment Built to Stand Up
Under Your Production Requirements
for **METERED PRESSURE PUMPING**
of Such Chemicals as:

SULPHURIC ACID

NITRIC ACID • LIQUID CHLORINE

HYDROCHLORIC ACID • SLURRIES

CHLORINATED HYDROCARBONS

HYDROGEN PEROXIDE • PROPANE

HYDROFLUORIC ACIDS • OLEUM

CYANIDE COMPOUNDS • STYRENE

SODIUM HYDROXIDE • FREON

- NO STUFFING BOX OR RUNNING SEAL
- HYDRAULICALLY-BALANCED DIAPHRAGM SEAL
- POSITIVE DISPLACEMENT PISTON MEASUREMENT
- FLOW RATE ADJUSTABLE WHILE IN OPERATION
- OIL-BATH LUBRICATION OF ALL MOVING PARTS
- UNITS AVAILABLE FOR MANUAL OR AUTOMATIC CONTROL



Lapp
PULSAFEEDER
PISTON-DIAPHRAGM CHEMICAL PROPORTIONING PUMP

WRITE for Bulletin 262 with complete description and specifications.
LAPP INSULATOR CO., INC., PROCESS EQUIPMENT DIVISION, 131 MAPLE STREET, LEROY, N. Y.

When inquiring check CP 5560 on handy form, pgs. 2-3

REDESIGNED FOR
**UNIVERSAL
MOUNTING**
NOW AVAILABLE!
ONE STANDARD MODEL
FOR YOUR POWER
TRANSMISSION
REQUIREMENTS

The new **ANGEL Gear**

INCORPORATING THESE FEATURES:

- Two-way and three-way units.
- Two end mounting flanges with internal pilot.
- 3/4"-36 SAE serrated shaft on any end.
- Procurable with flexible shaft adapter on any end.
- Three bolt side mountings.
- Pressurized shaft seal at either end mounting flange.
- Static load rating 250" lbs. (Special load rating 500" lbs. available.)
- All units rated 1/3 HP at 1800 RPM.

Write today for latest literature

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ACCESSORIES CORPORATION
25 MONTGOMERY ST. • HILLSIDE 5, NEW JERSEY
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W. H. WRIGHT • DALLAS, TEXAS

When inquiring check CP 5557 on handy form, pgs. 2-3

DECEMBER, 1949



**"K" CAST-IRON FITTINGS
GIVE YOU
THE CRAFTSMANSHIP
OF SPECIALISTS**

"K" on a cast-iron fitting is the trademark of a company that has specialized on this class of product for more than sixty years. All of our efforts, skills, and facilities are devoted exclusively to the manufacture of cast-iron fittings which we guarantee to be sound and accurate in every respect.

A large proportion of the country's leading plant engineers and piping contractors have learned that it pays to use "K" Cast-Iron Fittings. This is evidenced by the growth of our business, which has required numerous plant expansions to keep a complete supply of "K" Fittings in stock for immediate shipment.

The "K" line consists of 3,000 sizes in the following types:

Standard and Extra Heavy Flanged Fittings
Standard and Extra Heavy Screwed Fittings
Drainage and Sprinkler Fittings
Standard and Extra Heavy Companion Flanges

We have a handy pocket gage for measuring pipe sizes. It contains a table of theoretical allowances for make-up when pipe is forcibly screwed into fittings. If you want one, mail a request on your letterhead.

K PRECISION FITTINGS
THE
KUHN'S BROTHERS CO.
1808 McCALL AVENUE
DAYTON 1, OHIO
Combined Market Facilities with Malleable Iron Fittings Co., Branford, Conn.

When inquiring check CP 5561 on handy form, pgs. 2-3

Page 86

PROCESSING EQUIPMENT

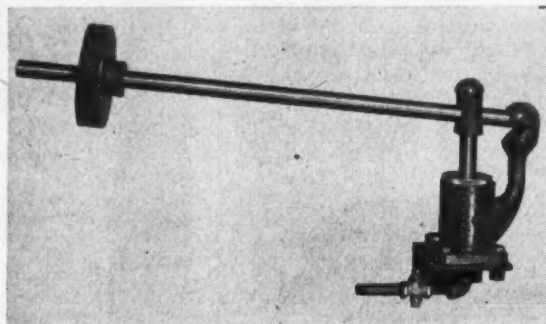
**Lubricate pumps, machinery
at constant pressure with
weight-loaded device . . .**

position of lubricator arm indicates the amount of lubricant in cup of $7\frac{1}{2}$ oz. capacity

Uses: Application of lubricant to stuffing boxes of pumps and to mixers, motors and engines, heavy machinery, line shafting bearings and motorized and lubricated valves.

Features: Because position of lubricator arm gives exact indication of amount of lubricant in cup, positive warning is given when lubricant supply runs low.

Replenishment of lubricant does not require disassembling of lubricator. Lubricant is supplied through a standard fitting located at bottom of grease cup. Unit may be taken apart without use of tools because of its unique yoke and pin construction and simple grease cup cover. Compression cup is made of special molded leather backed by steel plate.



Adjust weight on lubricator arm for lubricating pressures to 150 psi

Description: Because weights of different values may be used and adjusted infinitely throughout length of lubricator arm, pressures may be applied to lubricants up to 150 psi. By using additional weights even higher pressures may be obtained. Device has a bracket for universal mounting, with a shut-off valve available as optional equipment.

Grease cup has capacity of $7\frac{1}{2}$ oz. and its conical bottom facilitates lubricant passage.

Source: Weight-loaded lubricator is made by Mixing Equipment Co., Dept. CP, 1024 Garson Ave., Rochester 9, N. Y. . . . or for more information check CP 5562 on handy form, pages 2 and 3.

**General-purpose floodlights
serviced without tools;
are weather-tight . . .**

non-corrosive materials are used throughout; units weigh less than 17 lbs

Uses: Floodlights can be used for all general-purpose applications. Are available for either general lighting or floodlighting service.

Features: Non-corrosive material — aluminum and stainless steel — are used throughout. Units weigh less than 17 lbs; are weather-tight. Complete range of NEMA types 1 through 5 is available. Easily serviced without tools.

Description: Type L-84 is rated at 500 watts; Type L-85 is rated at 1000 watts. Both are available in 3 standard mountings, including a portable base. Floodlights

**here's help for
Your HIGH VACUUM
problems**

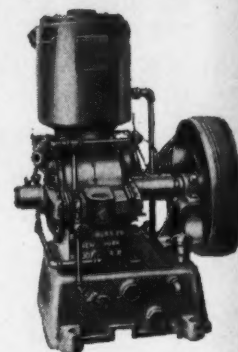
For such high vacuum processes as distilling, extracting, drying, impregnating, filling, packing, etc.—use the pump that produces the much needed, sustained high vacuum—in the low micron range—with high mechanical efficiency.

That's what you may expect and consistently get from Beach-Russ Rotary Piston Pumps:

- 1—Positive rotary motion at only 200 RPM without gears or springs yet—
- 2—High speed evacuation,
- 3—High volumetric efficiency and
- 4—Practically noiseless operation.

Thousands of these dependable pumps on wet or dry processes tell their success story. Available in sizes from 17 to 845 c.f.m. — in corrosion resistant metals, if required — for pressures within 10 microns blank flange.

Write for
Catalog No. 84.



**BEACH-RUSS
ROTARY PISTON
HIGH VACUUM
PUMPS**

BEACH-RUSS COMPANY
46 CHURCH ST., NEW YORK 7, N. Y.

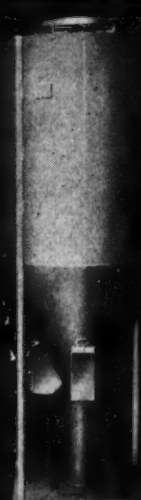
When inquiring check CP 5563 on handy form, pgs. 2-3

**VERTICAL
MIXERS**

by Sprout-Waldron

OFFER —

- minimum floor space
- low power consumption
- inter-batch reservoir



From glue flakes to organic dyestuffs — Sprout-Waldron vertical blenders are proving their worth in widely diversified industries. Capacities range from 10 to 375 cu. ft. Construction features and materials meet individual installation requirements. For best recommendations, consult Sprout-Waldron today!

SPROUT-WALDRON & COMPANY
Manufacturing Engineers
10 WALDRON STREET MUNCY, PA.

When inquiring check CP 5564 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

can be provided with either narrow-beam polished or wide-beam etched reflectors.

Door is hinged for relamping; has 3 swing-type latches. Heat-resistant door glass is cushioned in a silicone rubber gasket, sealing the joint between the door and casing. Clamping handle for vertical adjustments is provided. Floodlights can be serviced completely without the use of tools.

Photographs, photometric data, and dimensional diagrams of these units are contained in manufacturer's Bulletin GEC-537.

Source: Product of the General Electric Co., Dept. CP, Schenectady 5, N. Y. or for more information check CP 5565 on handy form, pages 2-3.

Sprays of sluicing liquid strike cake of each leaf, clean filter in jiffy . . .

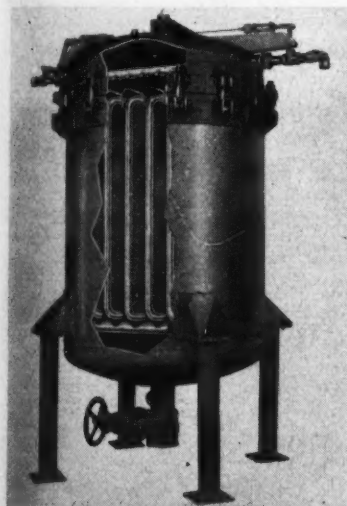
self-sluicing unit removes 35-cu-ft cakes in 15 min. with 70 to 100 cu. ft. of water

Uses: Automatic self-cleaning filter. Permits completely automatic cake removal and disposal; hence, of particular value where toxic fumes exist, or where liquids or solids dangerous to handle are involved.

Features: Decreases down-time between cycles. Increases total productive filtration time and daily production. In actual installations, filter cakes up to 35 cu. ft.

are removed in as little as 15 min., with only 70 to 100 cu. ft. of water consumed. Time and labor required to loosen cover eyebolts, open cover and manually wash down filter cake at end of each cycle, and then retighten cover, are eliminated.

Due to automatic sluicing, a single operator can take care of a multiple battery of filters. Filter cake does not have to be handled: by suitable piping arrange-



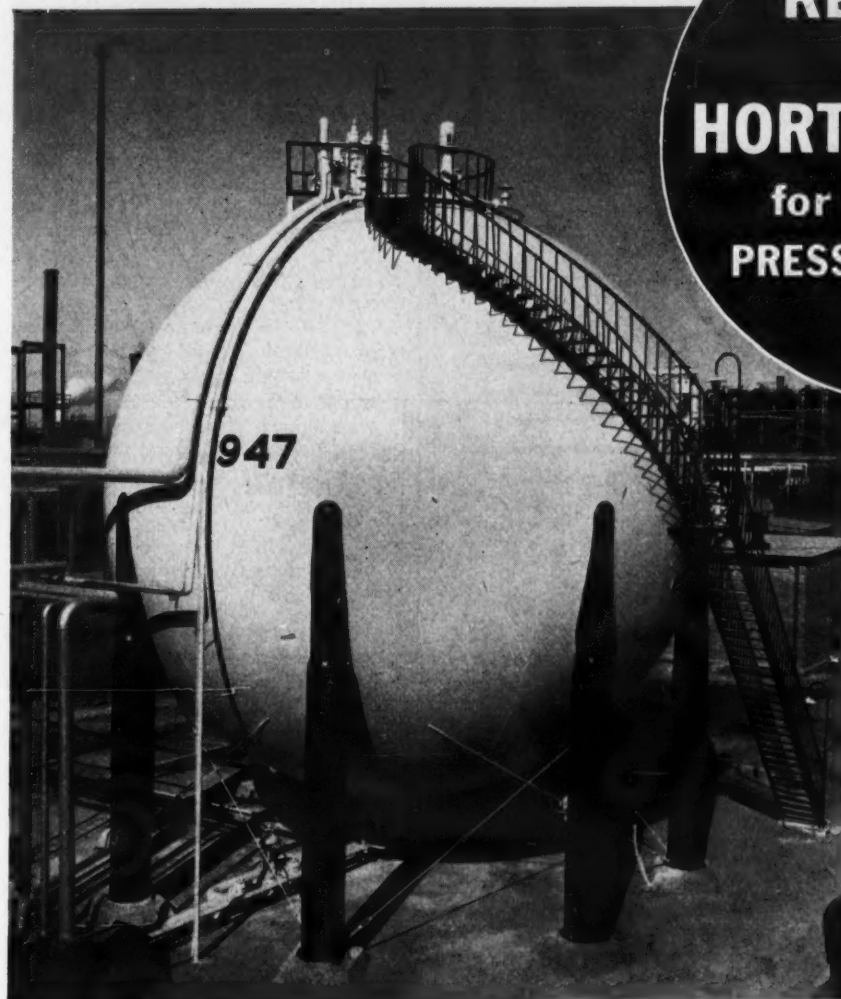
Self-cleaning filter

ment, it can be discharged under pressure, in largely repulped condition, direct to waste. Or, it can be delivered to other points for further processing.

Description: Built into the filter cover, "Auto-Sluice" consists of a header into which high-pressure spray nozzles are fitted. These are so positioned that sprays of sluicing liquid strike the cake of each leaf. Air motors impart both rotary and reciprocating motion, thoroughly cleaning all surfaces.

Simple adjustments regulate speeds and limit movements of header. "Auto-Sluice" filters are in sizes from 120 to 500 sq. ft. of filter area, constructed of steel, stainless steel, various alloys and other commercially-available materials.

Source: Niagara Filter Corporation, Dept. CP, Buffalo, N. Y. . . . or for more information check CP 5566 on handy form, pages 2 and 3.



REFINERY uses a **HORTONSPHERE** for emergency **PRESSURE STORAGE**

This 5,000-bbl. Hortonsphere at the Esso Standard Oil Company's Baton Rouge refinery is used as an emergency "slop sphere" to provide pressure storage for light liquid hydrocarbons which cannot safely be stored in ordinary tanks. The sphere is equipped with an alarm which sounds when the tank is half full. It also has a shut-off valve operated by a liquid level control which closes the inlet line when the sphere is three-quarters full. The tank and vapor line at the top are both equipped with safety valves that discharge into a flare stack.

This is just one example of the many uses of the versatile Hortonsphere. Ask our nearest office to show you how to use a Hortonsphere in your plant.

The Hortonsphere is used at refineries and storage terminals to store and handle volatile hydrocarbons under pressures as high as 150 lbs. per sq. in. The advantages of this kind of storage include compact, efficient storage in large-capacity units; simple operation and maintenance; and a high degree of fire safety. This last advantage is the most important in a slop sphere which the Esso Standard Oil Company installed at its Baton Rouge refinery to store volatile products during emergencies.

Stocks sent to this Hortonsphere consist of varying mixtures of propane, butane, and pentane. Fire hazard is reduced because the Hortonsphere allows a pressure to build up on the inside of the tank instead of venting vapor to the atmosphere. There will be no venting as long as the internal pressure does not exceed the setting of the pressure relief valve. Ordinary tanks operating at atmospheric pressure were not suitable because they created a hazardous condition by venting combustible gases.



CHICAGO BRIDGE & IRON COMPANY

Atlanta 3 2107 Healey Bldg.
Birmingham 1 1533 North Fifth St.
Boston 10 1007-201 Devonshire St.
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Cleveland 15 2212 Guildhall Bldg.
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Houston 2 2151 National Standard Bldg.

Los Angeles 14 1336 Gen. Petroleum Bldg.
New York 6 3314-165 Broadway Bldg.
Philadelphia 3 1650-1700 Walnut St. Bldg.
Salt Lake City 1 1507-1st Security Bk. Bldg.
San Francisco 11 1245-22 Battery St. Bldg.
Seattle 1 1307 Henry Bldg.
Tulsa 3 1649 Hunt Bldg.

Plants at BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILLE, PA.

When inquiring check CP 5567 on handy form, pgs. 2-3

This catalog insert describing the
Hapman Cable-Veyor sent on request.



**HAPMAN
CABLE-VEYOR**
Dustproof Self-Cleaning
FOR
FLOWABLE MATERIALS

Designed and engineered to meet your requirements for a dust-proof, corrosive resistant and extremely sanitary conveyor to handle all types of FLOWABLE materials at low cost per cubic foot. Positive material movement is secured at speeds from 5' to 300' on vertical, horizontal or inclined planes and around curves. Oversize flights scrape inside of steel tube regardless of direction or path of travel.

HAPMAN CONVEYORS, Inc.
2405 W. McNichols Rd. • Detroit 21, Mich.

When inquiring check CP 5568 on handy form, pgs. 2-3

these advantages of

PETROLITE *Exceeds Quality* **WAXES**
make them first choice
for manufacturers of
emulsion polishes

HIGH MELTING POINT
LOW PENETRATION
COMPATIBILITY
GLOSSINESS
LOW TACK
LOW COST

EASE OF EMULSIFICATION
INSOLUBILITY IN THE
USUAL ORGANIC
SOLVENTS AND WATER
UNIFORMITY
PURITY

and these
specifications

Crown Quality Number	Melting Point °F	Penetration with 100 grams	Color N.P.A.	Acid Number	Saponification Number
200	190/195	10 Maximum	Brown	Nil	
500	190/195	10 Maximum	2½ Maximum	Nil	
700	190/195	5 Maximum	2 to 2½	Nil	Nil
1035	195/200	2 Maximum	2 to 2½	Nil	Nil
23	180/185	6 Maximum	4½ to 6	20 to 25	55 to 65
36	180/185	8 Maximum	5½ to 8	30 to 35	85 to 95

Descriptive literature and samples available on request.

PETROLITE *Exceeds Quality* **WAX**
Petrolite Corporation, Ltd. ★ WAX DIVISION
30 Broad Street, New York 4 ★ REFINERY: Box 390, Kilgore, Texas

When inquiring check CP 5569 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Gloves protect hands from temps as low as -85°F, as high as 314°F...

permit easier grasping of parts

Uses: For work with temperatures ranging from 85°F below zero to 314°F. Gloves are liquid tight, may be used in conjunction with heated or extremely cold solutions.

Features: Curved fingers, wrist-length gauntlets add to comfort of workers. Insulating lining is formed of several layers of wool fleece.

Description: Made of red neoprene, gloves were tested at minus 85°F, plus 2°, 12°, 212°, and 314°F. At 12°F no discomfort was reported after 30 minutes of constant immersion in cooled liquid.

High temperature tests were made with heated glycerine; low temperature tests used ice in calcium chloride brine and dry ice in acetone.

Source: The Pioneer Rubber Co., Dept. CP, 1939 Tiffin Rd., Willard, Ohio. . . or for more information check CP 5570 on handy form, pages 2 and 3.

Coat pump diaphragm with acid-resistant plastic . . .

unit has adjustable suction pipe; handles solvents, thinners, oils

Uses: For pumping lacquer and synthetic thinners, turpentine, acetone, benzene, benzol, perchlorethylene, trichlorethylene, detergent oils, linseed oils, stoddards solvent and similar liquids.

Features: Special diaphragm is made of heavy cross-weave cord, plas-



Pump adjusts to ¾, 1½ or 2" openings

tic coated on both sides. Its resistance to chemicals makes this pump well suited for handling corrosive fluids.

Description: Chemical pump No. 777 is equipped with adjustable suction pipe to fit either ¾, 1½ or 2"

**STAINLESS
FABRICATION
by GRAVER**



Stainless steel tank 12x32 fabricated by Graver for large chemical processes.

■ Graver offers complete facilities for fabrication of stainless, stainless clad, nickel, nickel clad, Monel, Everdur, and aluminum. Vessels of any size—12 gauge and heavier—finishes up to

and including No. 4. Full compliance with code requirements. Special equipment and crews for lining, erection and other field work. Write for quotations.

GRAVER

**STAINLESS AND ALLOY STEELS DIVISION
GRAVER TANK & MFG. CO., INC.**
EAST CHICAGO, INDIANA
NEW YORK CATASAUQUA, PA. PHILADELPHIA HOUSTON CHICAGO SAND SPRING, OKLA.

When inquiring check CP 5571 on handy form, pgs. 2-3

**BATCH MIXING
MADE... Simple
Safe!
Sure!**

with
**EMPIRE
INDUSTRIAL
METERS**

You can batch mix, blend or process most any liquid with Empire meters. You'll gain speed, accuracy and the safety of a closed piping system. You'll save money!



Empire meters are efficient tools for the chemical, food, drug and process industries. They provide exact measurement with the turn of a valve. As a further convenience, automatic shut-off controls are available in some sizes. Several types of registers can be furnished. Sizes ½" to 3".

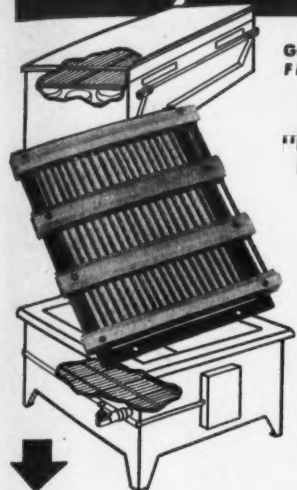
Ask for Bulletin B-621

PITTSBURGH EQUITABLE METER DIVISION
ROCKWELL MANUFACTURING COMPANY
Pittsburgh 8, Pa.

When inquiring check CP 5572 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

From 'Burger Grills to Compound Kettles!



Greater Heating Efficiency
Five Year Guarantee!

TRENT Patented

**"FOLDED-AND-FORMED"
HEATING ELEMENTS**

Here is electric heat in its most effective, durable and economical form... positive assurance of longer, completely trouble-free service for all types of equipment. No separate elements to break or burn out... no intermediate terminals to cause trouble. Grills, kettles, ovens, furnaces, space heaters, drying machinery and air conditioning ducts, are typical of many applications. Can be mounted horizontally or vertically.

**Now In Economical
Standard Racks**

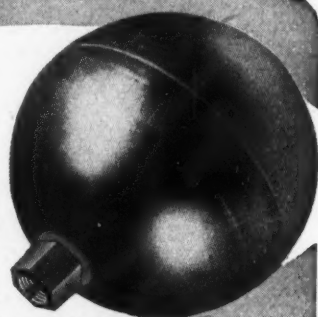
Send for your copy of Bulletin 80-T, completely describing "Folded-and-Formed" Heating Element Racks with the five year guarantee for temperatures up to 1350° F.



Electrically Heated Industrial Equipment
235 LEVERINGTON AVE. PHILA 27 PA

When inquiring check CP 5573 on handy form, pgs. 2-3

End These Common Float Failures



- Corrosion
- Lack of Buoyancy
- Collapsing
- High Replacement Cost
- High Temperature Failure

Use STAINLESS STEEL FLOATS

Standardize on Stainless Steel for all your float requirements. You'll find that the long, trouble-free service you get will literally put an end to your float maintenance problems. Costly dismantling of equipment to get at faulty floats is practically eliminated because Stainless Steel Floats from Chicago Float Works will function efficiently for many years, often for the life of the equipment in which they are installed. At Chicago Float Works you get the advantage of a complete line of standard sizes, shapes, and spud connections to choose from. Pressures to 1000 lbs.; temperatures to 800° F. Also special floats made to order. Monel and Nickel floats available for special applications.

SEND FOR COMPLETE CATALOG TODAY

CHICAGO FLOAT WORKS, INC.
2340 S. Western Ave., Chicago 8, Illinois

When inquiring check CP 5574 on handy form, pgs. 2-3

DECEMBER, 1949

PROCESSING EQUIPMENT

openings. Plated parts resist corrosion. Pump is fitted with automatic drain back feature, brass valve seats and bakelite valve disc.

Source: General Scientific Equipment Co., Dept. CP, 2700 Huntingdon St., Philadelphia 32, Pa. . . . or for more information check CP 5575 on handy form, pages 2 and 3.

**Open-end manometer
is easy to fill
and clean . . .**

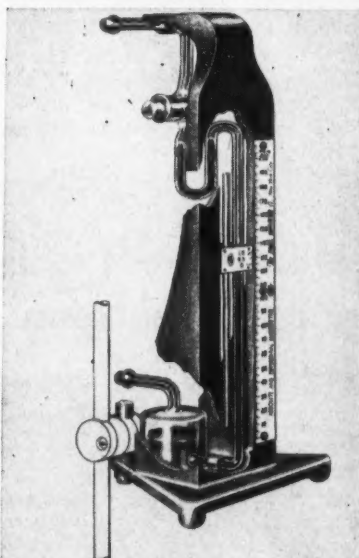
gives absolute or differential readings as desired

Uses: To measure pressure and vacuum by either absolute or differential manometric methods, offering ready flexibility.

Features: Simple reading gives precise measurement, automatically corrected for ambient temperature and reduced to height of mercury at 0°C.

Description: Open end manometer can be closed off for differential measurements, yet is as easily cleaned and filled as any differential model.

Unit has protective bracket for hol-



Manometer provides either absolute or differential readings.

low-ground, high-vacuum stopcock. Vernier is mounted on a block containing U cut out to eliminate parallax.

Source: Absolute and differential manometer is made by Emil Greiner Co., Dept. CP, 22 No. Moore St., New York 13, N. Y. . . . or for more information check CP 5576 on handy form, pages 2 and 3.

Cut Maintenance Costs Way Down when Handling Those "Tough" Materials



SHRIVER DIAPHRAGM PUMP

Imagine how long any ordinary pump would last, for example, handling hot glue plus emery! But because this highly abrasive material is confined to the liquid ends and does not come in contact with the working parts, the Shriver Diaphragm Pump design limits the abrasive action to only a few, inexpensive, easily replaceable parts. Thus, on "tough-to-handle" fluids the Shriver Diaphragm Pump gives long life, economical service instead of being scrapped because of excessive wear. Bulletin 126 tells an interesting pump performance story. Get a copy.

- ✓ No Stuffing Box.
- ✓ No Leakage—No Loss.
- ✓ No Wear on Working Parts.
- ✓ Costs Less to Operate.
- ✓ Easier to Maintain.

T. SHRIVER & COMPANY, Inc., 846 Hamilton St., Harrison, N. J.

When inquiring check CP 5577 on handy form, pgs. 2-3

It's an ALSOP FILTER



Dependable, trouble-free Alsop "SEALED-DISC" Filters will save you time, labor and money — whether you filter in variety or volume: for the simple removal of dirt, fiber, undesirable particles; or for ultra-fine, brilliant polishing. Thousands of users are sold on their convenience and speed of operation — their positive filtration results.

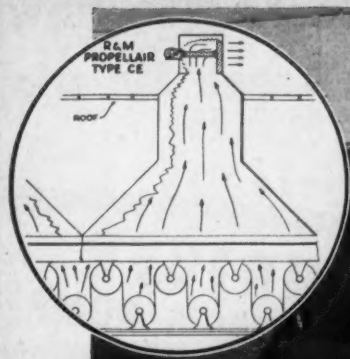
There's an Alsop Filter for every liquid product. Check their job — tested features, mail coupon for your copy of the New Alsop Liquid Processing Equipment Catalogue.

Alsop Engineering Corporation
412 Alsop Square
Middletown, Connecticut

Please send me a Free Copy of your New Catalogue.

Name _____
Street _____
City _____ Zone _____
State _____

When inquiring check CP 5578 on handy form, pgs. 2-3



TAKING THE STEAM OUT OF THE ROLLER ...PROPELLAIR helps make "paper profits" real

It was a familiar problem to Propellair engineers—moisture removal. A large Eastern paper manufacturer was troubled by steam forming over drying rolls. Sixteen R & M extension shaft fans came to the rescue. These fans are mounted in vertical stacks rising out of the hoods surrounding the paper-drying machines. Motors are mounted outside the stacks away from dampness. Many tons of moisture are removed daily by this set-up.

PROPELLAIR FEATURES

Blades are actual airfoils, give greater efficiency. Perfection of entrance housing lowers entrance losses. All motors carefully constructed for fan duty applications. Special moisture-proof, explosion-proof and glass-insulated motors on request.

VARIETY AVAILABLE

Propellair comes in many sizes and designs to give top performance for any application. Our engineers will advise you on installation of extended shaft, direct connected, belt drive, cradle mount, pedestal mount. Propellair provides the economical, efficient solution to all ventilating problems.

Write, Wire, or Phone for Details

PROPELLAIR
DIVISION OF ROBBINS & MYERS, INC.
SPRINGFIELD 99 OHIO

When inquiring check CP 5579 on handy form, pgs. 2-3

Top and Bottom Lubricated Plug Valves Made in Many Alloys

Hard, hardened or hard-faced plugs have grooves "cut" after grinding and lapping

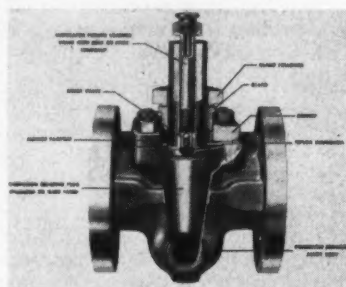
USES: For heavy-duty corrosive service.

Features: Two basic designs, plus comprehensive range of corrosion-resisting alloys, offer a selection for nearly every type of corrosive condition. Design permits successful use of plug valves for services where such valves were sometimes troublesome.

Hard, hardened or hard-faced plugs have grooves "cut" after grinding and lapping. Teflon diaphragm provides corrosion-resisting seal. Provision is made for lubrication with bulk or stick lubricant.

Description: All plug valves are offered in range of corrosion-resisting alloy bodies: Durimet 20, Chlorimet 2, Chlorimet 3, Durco D-10, pure nickel, Inconel, Monel and Ni-Resist.

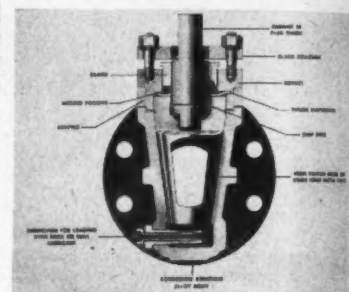
Top-lubricated valve has lubricant screw and spring-loaded check valve located in plug shank. Plug is retained in body by bolted bonnet. Plugs are hardened or hard-faced.



Top-lubricated valve's lubricator is located in plug shank

Plug can be turned with ease even when under considerable gland pressure.

Bottom lubricated Type B valve (used where plugs are too hard to machine readily) is provided with lubricator in body, below plug. Plug is flexibly jointed, plug proper being made of Durimet, Durochlor or other hard corrosion-resisting metal. Plug shank is of Durimet 20. Shank is permanently assembled into hard alloy plug.



Lubricator is in body, below plug in bottom lubricated valve

Design prevents transmission of shock from shank to plug and also provides best material of construction for each part of plug assembly.

Source: Type B plugs are available from The Durimet Co., Inc., Dept. CP, Dayton 1, Ohio . . . or for more information check CP 5580 on handy form, pages 2 and 3.

Roller Mills Give Precise Wet Grind, Dispersion for Limited Production Runs

Self-aligning roller bearings and special alloy steel, water-cooled rolls extend capacity of small units

USES: For wet grinding and dispersion. Designed primarily for laboratory use, these mills have been found practical for pilot plant and limited production applications.

Features: Distortion and warpage in bearing ways is prevented; perfect alignment of rolls for adjustment and grinding is assured.

Description: Mills are of the 3-roller type, with self-aligning roller bearings, special alloy steel water-cooled rolls. Individual valves control water flow through rolls, permit temperature regulation on each roll. Units can be supplied with stuffing boxes for steam if required.

Grinding unit is mounted on heavy steel plate, preventing transmission of torsional vibration through machine. Apron rides free on take-off roll, with pressure equalized over

entire length of roll by activated counterweight.

Cam type roll spreaders are employed to permit presetting, quick opening and closing of rolls. All moving parts except the rolls are encased, preventing dirt, other foreign matter from impairing action.

Aprons and guide plates are completely detachable for cleaning. Scraper blades can be readily replaced when it is found necessary.

Mills are in high-speed class, with front rolls revolving at 300 rpm. If desired, units can be equipped with stainless steel rolls, variable-speed drive, standard or totally-enclosed motor.

Source: Western Roy Alan Corp., Dept. CP, Torrance, Calif. . . . or for more information check CP 5581 on handy form, pages 2 and 3.

**Caustics and acids handled
by all-stainless steel
hand homogenizer . . .**

designed for laboratory and plant use, unit is easily operated, holds up to 9 ozs.

Uses: Homogenizer is capable of handling acids and caustics for laboratory and plant use.

Features: All parts are stainless steel, are easily disassembled for cleaning and sterilizing. Designed for testing and research.

Description: Homogenizer is 10-1/2" high; base measures 9 x 4-1/2".

Weight is 8 lbs.

All parts are stainless steel; has no gaskets or washers. Cylinder and pistons are ground and honed to close tolerances for high pressure performance. Various pressures are obtainable by adjusting nozzle.

Bowl holds from 2 to 9 ozs. of sample. To use, bowl is simply filled with the mixture to be processed. A few strokes of the piston homogenize the sample.



Stainless steel hand homogenizer handles acids and caustics

Source: Hand type homogenizer is product of the Colloid Equipment Co., Inc., Dept. CP, 50 Church St., New York 7, N. Y. . . . or for more information check CP 5582 on handy form, pages 2 and 3.

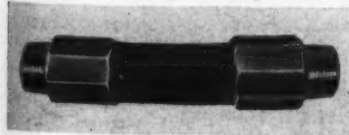
**Steam and water coils are
electrically insulated by
flexible coupling . . .**

rayon braid steam hose, rubber-covered inside and out, withstands 125 lbs water pressure

Uses: For electrical insulation of steam coils up to 40 lbs pressure, or may be used up to 80 lbs steam pressure with slightly decreased life expectancy. For insulation of water coils up to 125 lbs pressure.

For finishing rooms. For protecting plating tanks from grounds and shorts.

Features: Long-wearing, with sufficient flexibility to permit attachment even on connections which are slightly out of line. Couplings give permanent grip on rubber



Steam coil insulator

covering without cutting or bulging, even when used with high steam pressure or repeated cycles of steam and water.

Description: Built in 3/4 and 1" sizes with rugged male-threaded fittings on each end of a hexagon-shaped coupling for easy and fast installation to any water or steam line. Genuine rayon braid steam hose, covered inside and out with rubber.

Source: True Brite Chemical Products Company, Dept. CP, Oakville, Conn. . . . or for more information check CP 5583 on handy form, pages 2 and 3.

DECEMBER, 1949

YOUR FLOW METERING PROBLEM

May Already be Solved...



...by one of the SK Rotameters in our standard line.

That's why it would pay you to investigate—acquaint yourself with the numerous types and sizes we have to offer.

Many years of experience in solving hundreds of customer problems have helped us to design a group of Rotameters sufficiently diversified to meet most industrial requirements. However, should your problem differ from others so radically that one of our standard types won't solve it, you can count on our engineers to give you all the help possible in designing a new unit which will.

Bulletin 18-RA, shown at left, pictures and briefly describes the construction and principle applications of all standard SK Rotameters. It's yours for the asking.

SCHUTTE and KOERTING Company

Manufacturing Engineers

1173 THOMPSON STREET • PHILADELPHIA 22, PA.

JET APPARATUS • HEAT TRANSFER EQUIPMENT • STRAINERS • CONDENSERS AND VACUUM PUMPS • OIL BURNING EQUIPMENT • ROTAMETERS AND FLOW INDICATORS • RADIANT TUBES • VALVES • SPRAY NOZZLES AND ATOMIZERS • GEAR PUMPS • DESUPERHEATERS

When inquiring check CP 5584 on handy form, pgs. 2-3

Now EVERY laboratory can use
modern spectrophotometric methods

THE BECKMAN "MODEL B" SPECTROPHOTOMETER

accuracy . . . speed . . . simplicity
AT A NEW LOW PRICE



Spectrophotometric measurements—based on analysis of liquid, solid or gaseous samples by light absorption—have become one of the most important methods of today's

process control operations. Complicated analyses requiring hours to perform by standard chemical procedures are now completed in a matter of minutes using modern spectrophotometric methods.

Up to the present, quality instruments have been beyond the reach of many laboratories. Now, however, the development of the new Beckman Model "B" Spectrophotometer makes available for the first time a precision instrument—convenient and simple to operate—yet versatile, accurate and low-priced.

The Model "B" combines many of the advancements pioneered in the famous Beckman Quartz and Infrared Spectrophotometers . . . high resolution . . . wavelength and photometric accuracy . . . freedom from stray light . . . wide spectral range . . . quality construction.

It features direct reading absorbance and transmittance scales . . . complete elimination of stray light from 360 to 1000 millimicrons—less than 1% even at 320 millimicrons . . . interchangeable phototubes for wider wavelength range . . . inexpensive sample cells . . . 4-position cell carriage for faster readings . . . and many other important features.

The Model "B" is by all standards the outstanding instrument in its field. Write for full details. Beckman Instruments, National Technical Laboratories, South Pasadena, 11, Calif.



BECKMAN INSTRUMENTS
control modern industries

* Beckman Instruments include: pH Meters and Electrodes Spectrophotometers—Radioactivity Meters—Special Instruments

When inquiring check CP 5585 on handy form, pgs. 2-3



The "Model B" is THE Ideal Instrument For Simplifying Routine Analyses

Regardless of the nature of your laboratory operations—determination of impurities, control of quality, simplifying process control, color matching and control, or any of a wide range of other procedures—chances are you can speed up your analyses and greatly simplify your work by adopting modern spectrophotometric methods.

But remember—the accuracy and reliability of spectrophotometric analyses are no better than the instrument you use. So be sure to check all the features of the Beckman "Model B" Spectrophotometer—compare this instrument point by point with any other in its field—and you'll readily see why it is, by all standards, the outstanding spectrophotometer in its price range.

Here is an instrument carefully engineered so that stray light effects are negligible . . . an instrument where readings can be reproduced on sample after sample without "drift" or other inaccuracies . . . where band widths can be readily varied to permit the high resolution required in many analytical problems . . . where a variety of absorption cells can be used interchangeably to provide optimum path lengths . . . and where many other outstanding features are provided to assure maximum versatility, accuracy and dependability.

Be sure to get the full details on the many money-saving, time-saving applications for the Beckman "Model B" in today's chemical laboratories . . . and on the many unique advancements built into this instrument that make it such an outstanding value in its price range. See your authorized Beckman dealer—or write direct for complete data.

PROCESSING EQUIPMENT

**Dries air to 15 grains moisture
per lb, at 85°F dry bulb,
without refrigeration . . .**

dehumidifying spray is hygienic hygroscopic chemical containing no salts or solids

Uses: Absorbent dehumidifier for air conditioning. Installations are reported in process industries, where hygroscopic products are packaged, for preventing condensation of moisture on metals and other products in storage, and in air conditioning for laboratory control and human comfort.

Generally applied in temperature-range from 35° upward. (Below freezing temperature of water, manufacturer's "No Frost" method is used.)

Features: Provides dry air at normal atmospheric temperatures with little or no refrigeration. Dehumidifying spray is hygienic hygroscopic chemical which contains no salts or solids.

A condition of 15 grains of moisture per lb of air at 85°F dry bulb temperature is said to have been produced without refrigeration.

Description: Sizes range from 1000 to 20,000 cfm of conditioned air from a single unit, and multiple-unit installations are practical.

Apparatus is enclosed in casing through which air is drawn by fans. Air is filtered and enters chamber where it is dehumidified. Cooling coils which remove latent heat of evaporation are also located in this chamber.

Air-stream then passes through entrained moisture eliminators and is diffused into area being conditioned.

The absorbent liquid spray is piped to a concentrator which removes moisture taken from air. Reconcentrated liquid returns to system. Process is continuous, and apparatus operates at full capacity at all times.

By installing a tempering coil at outdoor intake, a humidifier, and a reheat coil above eliminators, this equipment provides winter air conditioning.

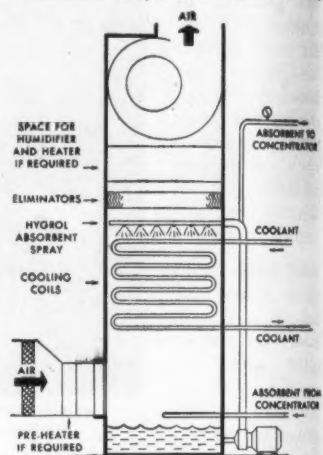
Source: Niagara Blower Company, Dept. CP, 405 Lexington Ave., New York 17, N. Y. . . . or for more information check CP 5586 on handy form, pages 2 and 3.

**Reduce wear on plunger pumps
with guide rod system which
prevents plunger slap . . .**

eccentric sidewise motion of plunger is eliminated; wear on plunger, cylinder, gland is minimized

Uses: To reduce excessive wear on packing gland, plunger and cylinder of plunger sludge pumps used for sewerage sludge disposal, transfer of other liquids with high content of heavy solids.

Features: Guide assembly is available on all models of maker's plunger pumps with displacements from 2 to 400 gpm in 4 and 6" suction and discharge sizes.



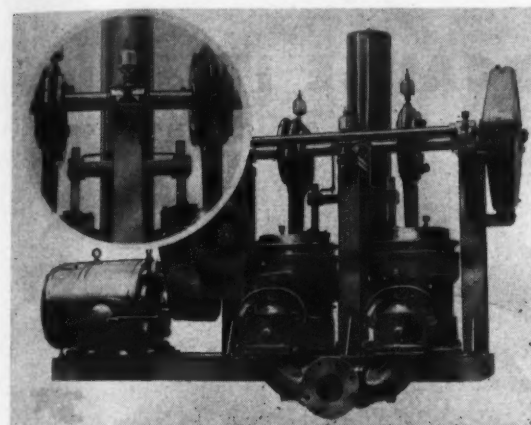
NIAGARA CONTROLLED HUMIDITY METHOD—FLOW DIAGRAM
Absorbent dehumidifier

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

Description: Crosshead guide assembly holds plunger in vertical plane against eccentric forces to either side which are generated by eccentric motion of the connecting rod.

Illustration shows typical double-plunger sludge pump



Double-plunger sludge pump is equipped with guide rods, bushings to prevent sidewise movement of plunger

with crosshead guide assembly installed. Inset shows close-up of main shaft, support for main shaft and the crosshead guide assembly. Vertical rods attached to each plunger ride up and down through bronze bushings which are rigidly attached to the main shaft support. These bushings prevent any sidewise movement of the plunger.

Constant lubrication of guide rods in the bushings is provided by sight feed oiler, which is visible just above main shaft on the support.

Source: The Ralph B. Carter Co., Dept. CP, Hackensack, N. J. . . or for more information check CP 5587 on handy form, pages 2 and 3.

Cuts or scores round, square and odd shapes from any pliable sheet material . . .

handy gasket cutter combines circular, linear cutting; cuts $\frac{1}{4}$ to 6" diam. circles in rubber, leather

Uses: For cutting gaskets and similar shapes from any pliable sheet material in round, square, straight, rectangular, oval or irregular shapes.

An all-purpose cutter combining circular and linear functions. Cuts rubber, leather, cardboard, canvas, balsam wood, wall board, plaster board, plastics, linoleum, cellophane, tin foil, lead, mica, wool, hycar, wax paper, teflon, etc. Also for scoring.

Features: "Ironing" action while cutting prevents thinnest materials from buckling or crinkling. Screw-knob adjustment permits direct setting according to exact diam. of circle to be cut, from $\frac{1}{4}$ to 6". Will accurately cut $\frac{1}{4}$ " hole in material $\frac{1}{8}$ " thick.

Description: Made of phenolic plastic. Dimensions $4\frac{1}{4}$ " long, $1\frac{1}{4}$ " wide and $\frac{3}{4}$ " high. Weighs less than 4 oz. White guide-line on side, ahead of blade, simplifies following pattern outline. Blade adjusts so as to convert cutter into a knife, using body of cutter as handle. Complete with instructions in kit containing cutter, cutting board, two blades and two pivot pins.

Source: Zimmerman Packing Company, Dept. CP, Cincinnati, O. . . or for more information check CP 5588 on handy form, pages 2 and 3.

Bagpakers

designed and serviced by the manufacturer of BAGPAK Multiwall Bags

Who but a manufacturer of multiwall paper bags is best equipped to design and service bag packaging machinery?

Automatic advantages of faster, more efficient packaging come with automatic BAGPAKERS . . . that's why we say —

if you want

a packaging machine that sews a multi-wall tighter and faster — rely on a BAGPAKER . . .

if you want

an automatic machine that weighs, fills, settles and seals better — rely on BAGPAKER . . .

if you want

a real performer — a dependable machine that boosts and maintains production rates — rely on BAGPAKER.

BAGPAKERS and Bagpak Multiwall Bags are ideal for packing food, chemicals and fertilizers. Write for our booklet 200B—it will give you added information on these money- and labor-saving machines and multiwall bags.



INTERNATIONAL PAPER COMPANY, Bagpak Division
220 East 42nd St., New York 17, N. Y.

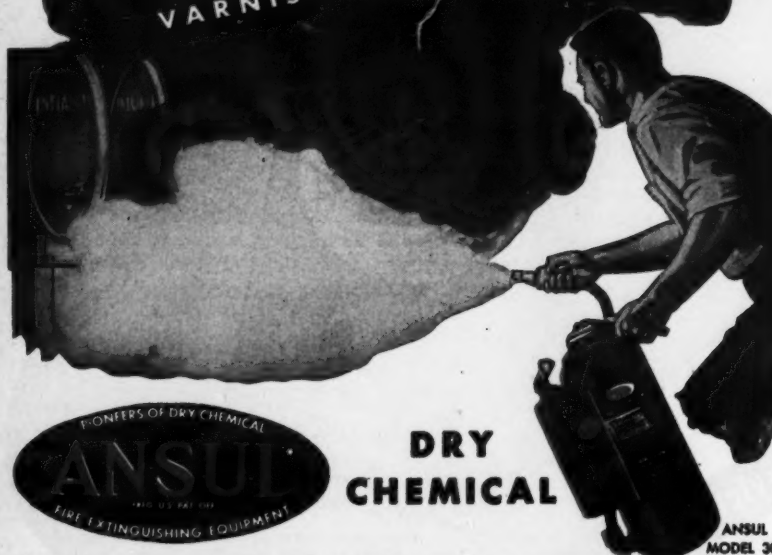
BRANCH OFFICES: Atlanta, Baltimore, Boston, Chicago, Cleveland, Baxter Springs, Kansas, Los Angeles, New Orleans, Philadelphia, Pittsburgh, St. Louis, San Francisco.

In Canada: Continental Paper Products, Ltd., Montreal, Ottawa.

When inquiring check CP 5589 on handy form, pgs. 2-3

FOR FLAMMABLE LIQUID FIRES

GASOLINE • NAPHTHA • BENZENE
ALCOHOL • LACQUER • PAINT
VARNISH • SOLVENTS • ETC.



FIRE EXTINGUISHERS ARE YOUR **BEST** PROTECTION

...and most economical, too! Tests conducted by impartial, nationally recognized approval laboratories have proved the superiority of Ansul Dry Chemical Fire Extinguishers on *Flammable Liquid Fires*.

Processing, handling, transferring, and storing of flammable liquids and gases involve fire hazards which demand the best in first-aid fire protection. For years the major chemical and petroleum processing plants have been using Ansul Extinguishers as their first line of fire defense. There is a reason...

Get the facts. Send for your copy of File No. 403. You'll also receive our latest literature together with comparative rating charts for the various types of fire extinguishers.

- Safe for use on electrical fires. Not even high voltages are not conducted by dry chemical stream.
- Can be recharged or some of the furnishing maintaining protection.
- Annual recharging is not necessary. Low maintenance costs.
- Longer range stream of dry chemical is effective in windy and drafty.
- Ansul Dry Chemical is non-corrosive, non-toxic.
- Listed and Approved by Underwriters Laboratories and Factory Mutual Laboratories.

ANSUL CHEMICAL COMPANY
FIRE EXTINGUISHING DIVISION, MARINETTE, WISCONSIN
DISTRIBUTORS IN PRINCIPAL CITIES IN THE UNITED STATES, CANADA, AND OTHER COUNTRIES

When inquiring check CP 5590 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Valve design provides uniform atomization at all loads...

proportioning-type unit; easy to install or remove

Uses: On de-aerating heaters, vacuum de-aerators and hot process softeners.

Features: Non-clogging; designed to provide tangential spraying action and atomization of incoming water to droplet form. Operating tests show "zero" oxygen after atomization in steam atmosphere without use of any reboiler or scrubber devices.

Compact design permits easy installation of valve or its removal for inspection. This makes it especially suitable for modernizing equipment in service.

Description: Valve has external stem and is diaphragm-operated. Dia-



Atomizing valve features sectional design

phragm may be actuated by a float cage pilot or differential orifice. Balanced inner valve design gives accurate and sensitive control characteristics regardless of line pressure. Liberal clearances and port openings eliminate possibility of clogging due to turbid water supplies or scaling due to high bicarbonate hardness in water supply being employed.

Sectional design permits increasing capacity of existing equipment by addition of more sections. Available in all capacity ranges up to 2,000 gal per minute.

Source: Atomizing valve is made by Belco Industrial Equipment Div., Inc., Dept. CP, 103 Iowa Ave., Paterson, N. J. . . . or for more information check CP 5591 on handy form, pages 2 and 3.

World's Favorite.

BECAUSE IT SAVES WORK AND MONEY



RIDGID's
guarantee means no
pipe wrench housing
repair or expense—ever

● The famous **RIDGID** guarantee is just one of the features that make **RIDGID** the choice of millions the world over. You also like its free-spinning adjusting nut, handy pipe scale on hookjaw and comfort grip I-beam handle with flared end that keeps your hand from slipping off. For a work-saver that's a pleasure to use buy the world's favorite—**RIDGID** wrenches, 6" to 60," at your Supply House.

RIDGID
WORK-SAVER PIPE TOOLS
THE RIDGE TOOL CO. • ELYRIA, OHIO

When inquiring specify CP 5592 on handy form, pgs. 2-3

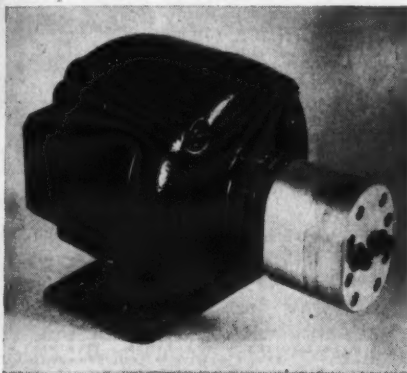
PROCESSING EQUIPMENT

Pump 1 1/2 gpm of oil at 200 psi with noiseless gear pump . . .

1/4 HP, 1725 rpm split-phase motor is direct-coupled to pump for permanent alignment

Uses: Designed for use in quick oil changing equipment, but also suitable for service in hydraulic and oil pumping applications.

Features: Pump is close-coupled to motor, assuring perfect alignment. This also reduces size and weight to



Close-coupled oil pump

minimum. Has rugged construction. Operates quietly.

Description: Model 1304 is a gear pump, equipped with aluminum body, bronze gears, cup seal, and attached to a 1/4 hp, 1725 rpm, split-phase motor. Performance: 1 1/2 gpm at 200 psi.

Source: Built by Eastern Industries, Inc., Dept. CP, 296 Elm St., New Haven 6, Conn. . . or for more information check CP 5594 on handy form, pages 2 and 3.

Line of high-current resistors has minimum resistance value of 0.05 ohm . . .

five sizes range from 6 to 19" long; continuous current capacities 21 to 79 amperes

Uses: Edgeohm high-current resistors in shorter lengths, for lower wattage applications than formerly. Typical intermittent-duty applications: starting, dynamic braking, field discharge and plugging resistors on motor controllers.

Typical continuous-duty applications: load banks, battery charging, welding and plating rheostats.

Features: Four new sizes, in addition to manufacturer's 19" lengths, extend minimum resistance value per unit from 0.35 to 0.05 ohms. Continuous current capacities range from 21 to 79 amperes for all sizes. Maximum continuous duty ratings approximately 2200 watts for 19" units to 320 watts for 6" resistors.

Available with individual stamped steel mounting brackets; also with multiple units, up to four, mounted in a single open frame.

Description: In 6, 9-1/4, 12-1/2, 15-3/4 and 19" lengths. Continuous non-corrosive oval-shaped alloy resistance ribbon. Clamp-type terminals. Additional clamp terminals and special multi-unit or enclosed assemblies are available.

Source: Ward Leonard Electric Co., Dept. CP, Mount Vernon, N. Y. . . or for more information check CP 5595 on handy form, pages 2 and 3.

DECEMBER, 1949



for continuous heavy-duty operation

O-CE COMPRESSORS

When the demand is for a continuous, economical supply of air, the CP motor-driven O-CE COMPRESSOR is unsurpassed.

Quick-acting Simplate valves minimize power consumption and provide high volumetric efficiency. Large, stream-lined air passages make air flow resistance negligible. CP Multi-Step Control handles partial load demands economically. CP Intercooler assures maximum heat transfer with low water consumption. CP Automatic Starting Unloader completely unloads compressor when starting and stopping.

The CP heavy-duty, conservatively rated Class O-CE Compressor is of the horizontal, double-acting, water-cooled type, with direct-mounted synchronous motor drive; in sizes up to 1,750 h.p., for pressures up to 5,000 pounds.

**Write
for full
information.**



**CHICAGO PNEUMATIC
TOOL COMPANY**

General Offices: 8 East 44th Street, New York 17, N. Y.

ELECTRIC TOOLS • PNEUMATIC TOOLS • AIR COMPRESSORS • ROCK DRILLS
DIESEL ENGINES • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

When inquiring check CP 5596 on handy form, pgs. 2-3

General Ceramics vs. Corrosion! IN CHEMICAL PROCESSING

● General Ceramics equipment—stoneware (Ceraware), porcelain (Cerawite) and impregnated graphite (Impervite)—is the answer to your corrosion problems, if you handle muriatic, sulphuric or nitric acids, hydrogen peroxide or any other corrosive agents except hydrofluoric acid and hot caustics. It's not only corrosion resistant, but corrosion proof, serves best where corrosion is worst.

What's your problem?...

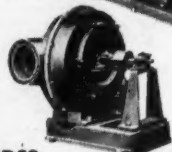
HANDLING CORROSIVE GASES?

Answer:
Use Ceraware Vacuum Pumps
Bulletin CHE-R3



FUME DISPOSAL?

Answer:
Use Ceraware Exhausters
Bulletin RA and REPR



STORING CORROSIVE LIQUIDS?

Answer:
Use Ceraware and Cerawite vessels and tanks
Bulletin 111 and J



COOLING AND HEATING CORROSIVE AGENTS?

Answer:
Use Impervite and Ceraware Heat Exchangers
Bulletin GR, 175 and Circular A



Write for the Bulletins that answer your particular corrosion problem... Write for Bulletin No. CHE-R3 for a description of the full scope of General Ceramics' manufacturing and service.

YOU SAVE 3 WAYS WITH GENERAL CERAMICS' SSS*

Savings through uniformity of construction... no misfits.
Savings on shipping costs... one shipment for everything.
Savings on paper work, accounting... one order, one bill.



General Ceramics AND STEATITE CORP.

CHEMICAL EQUIPMENT DIVISION

25 Crows Mill Road Keasbey, New Jersey

[Sales Offices in: BUFFALO, CHICAGO, LOS ANGELES, PITTSBURGH, PORTLAND, ORE., SAN FRANCISCO, SEATTLE, TACOMA, MONTREAL, TORONTO, VANCOUVER, B.C.]

Our Insulator Division Manufactures Steatites, Porcelains, Titanates, Ferrites

5539

When inquiring check CP 5597 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

10,000 sq. ft. of prints daily
in 20 color combinations
from whiteprinter...

requires no plumbing, ventilation, or skill to operate; prints are flat, dry, ready to use

Uses: Makes reproductions of anything drawn, typed, printed, or written from postcard size to 42" wide and any length.

Features: Machine is capable of producing up to 10,000 sq. ft. of prints in ordinary working day. Delivers them flat, dry, and ready for instant use. Twenty combinations of colored lines and tinted backgrounds are possible.

Printer requires no plumbing connections or ventilation ducts; can be conveniently located where necessary current is provided. Operation cated anywhere requires no skill.



Whiteprinter delivers prints ready for instant use

Description:

"Model 50"

Whiteprinter produces BW prints directly from originals. Eliminates stencils, special masters, film negatives, errors from manual transcription, and proof reading. Model 50 operates at variable speeds up to 24' per min. Delivers prints flat and dry, neatly stacked, ready for instant use.

Prints are clear and easy to read. They look like the original with black or colored lines on a white or tinted background. This versatility permits simple color-keying. For example, experimental prints can be shown on pink paper; approved prints on yellow.

Users have choice of sensitized paper, film, and cloth in the form of cut sheets and roll stock. Further information on Model 50 and the BW Process is offered in maker's Bulletin A-1063.

Source: Product of Charles Bruning Company, Inc., Dept. CP, 4754 W. Montrose Ave., Chicago 41, Ill. . . . or for more information check CP 5598 on handy form, pages 2 and 3.

Pump 5-85 gph at 0-45' head with mechanically-sealed side-suction units...

made in bronze fitted, all-iron or all-bronze; casings are vertically split

Uses: For general service or for use as original equipment by manufacturers where requirements are within capacity range of 5-85 gpm. Suitable for incorporation in air conditioning units, cooling towers, evaporator coolers and hot water circulators.

Features: Casings are vertically split. Suction is located at end and discharge can be rotated to any of 6 positions 60° apart. Motor is equipped with stainless steel shaft.

Description: Type SAC close-coupled, small-capacity,

Murphy PARAGON "C"

A SMALL COMPRESSED AIR SEPARATOR

GUARANTEED

TO REMOVE THE LAST TRACE OF MOISTURE,
OIL, AND DIRT FROM COMPRESSED AIR

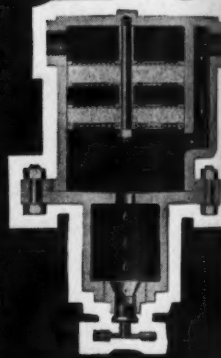
AT POINT OF USE

Installed just ahead of point of delivery, PARAGON "C" removes the last trace of pipe line condensation, scale, and grit, and delivers air, clean and dry, to immediate use.

Economical to buy and maintain, simple to install.

FREE

Our Bulletin P-A gives details of operation, construction, and prices. Ask for it today!



AFTERCOOLERS • SEPARATORS • STRAINERS • TRAPS
SPRAY GUNS • PISTOL SPRAYERS

JAS. A. MURPHY & CO.

501 NORTH FIFTH STREET, HAMILTON, OHIO

Moisture Elimination Up To 3000 Pounds Per Square Inch

When inquiring check CP 5599 on handy form, pgs. 2-3

LOW COST DRYING
with The "INSTANT DRYING" System
INSTANTLY!!

- Less power, smaller connected load required.
- Large capacity, rugged construction.
- Minimum labor—one man per shift to a battery of several units.

Many have proved savings with "INSTANT DRYING." Your drying problem in a letter will bring detailed information on "INSTANT DRYING" and specific answers to your questions.

INSTANT DRYING CORPORATION
101 Park Avenue, New York 17, N.Y.
Engineering by CLARK, MacMULLEN & RILEY, INC., N. Y.

Testing and Research Laboratories at Poughkeepsie, N. Y.

When inquiring check CP 5600 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

low-head, side-suction pumps. Line has capacity range of 5-85 gpm, head range of 0-45 feet at speeds from 1750 to 3500 rpm.

Available in sizes $\frac{3}{4}$, $1\frac{1}{4}$ and 2" in bronze fitted, all-iron or all-bronze construction. Pump and motor supported by adaptor bracket. Mechanical seal is standard equipment. Impeller is balanced, of enclosed type, of high grade bronze material. Motors built to NEMA specifications are available for all electric circuits and various enclosures. Ball bearings are built into motor.

Source: Aurora Pump Co., Dept. CP, 76 Loucks St., Aurora, Ill. . . . or for more information check CP 5601 on handy form, pages 2 and 3.

Heats 31,500 gallons of water per hour noiselessly . . .

heater can be regulated manually or automatically; 9 sizes are available

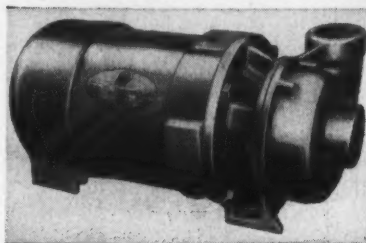
Uses: Water heater can be installed where large quantities of steam and water are available — as in the oil, metallurgical, pharmaceutical, mining, paper and textile fields.

Features: Steam is absorbed directly in water without heat loss. Operation is noiseless and safe; can be regulated manually or automatically. Nine sizes with capacities ranging from 3960 to 31,500 gph are available.

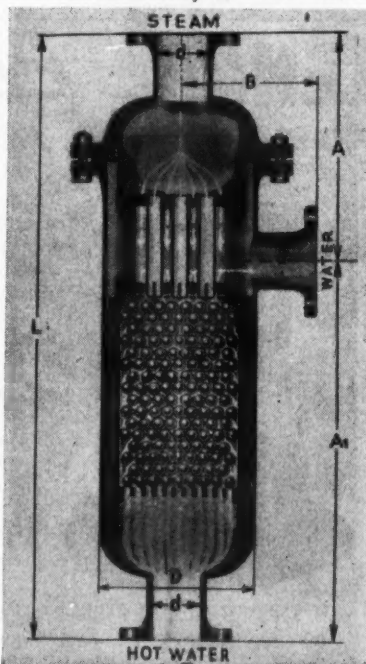
Description: "Hy-Flow" is built in accordance with the ASME-API or ASME Code for 150-lb working pressure. Can be made of chrome, clad steels, nickel, copper, aluminum, or lead-lined to suit specific requirements. Heater is small in dimensions for its relatively large capacity. Maintenance and replacements are reported to be low; unit is easily cleaned.

Largest size has a capacity of 31,500 gph; some dimensions, as illustrated, are as follows: L, 63"; D, 20"; A₁, 42"; and d, 8".

Source: Hy-Flow is a product of the A. Gunthard Co., Dept. CP, Ennis, Texas . . . or for more information check CP 5602 on handy form, pages 2 and 3.



Side-suction pump — $\frac{3}{4}$, $1\frac{1}{4}$, 2" sizes



Noiseless water heater

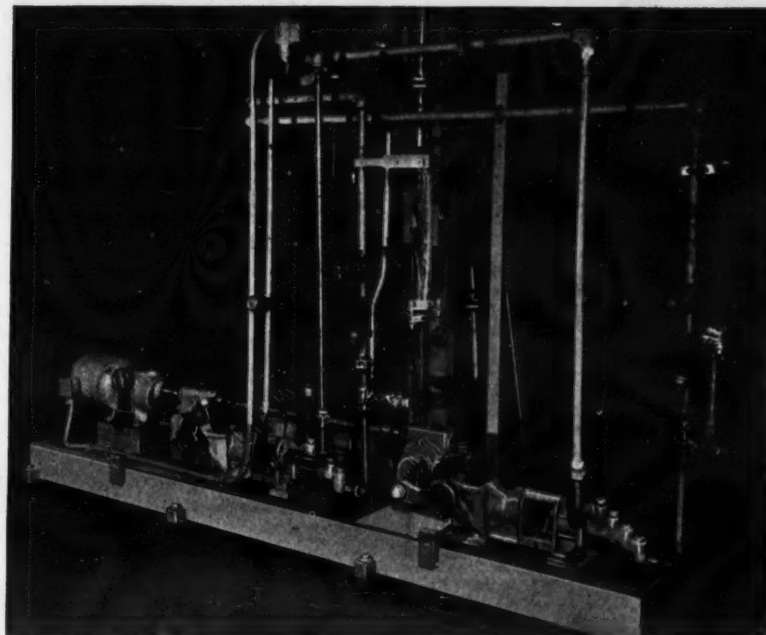
MILTON ROY PUMPS

and Automatic Chemical Feed Systems

Problem

TO MAINTAIN CONSTANT RATIO
OF CAUSTIC TO SILICATE
TO PEROXIDE IN A
PEROXIDE SATURATOR

Answer



A MILTON ROY "GANG" PUMP

The accompanying illustration shows a 3-cylinder Milton Roy Pump installed in a southern cotton mill, feeding 50% caustic, sodium silicate and hydrogen peroxide in exact ratio to a Peroxide Saturator.

One Duplex and one Simplex pump, mounted on a common base, are driven by a Speedranger motor unit. This drive varies the number of strokes of all three plungers from a maximum of 56 to a minimum of 7 per minute, regulating the total discharge of the pump over an 8 to 1 range. Additional control of discharge by each plunger is provided by micro stroke length adjustment. This individual control permits varying the ratio of each

liquid stream from zero to maximum while the system is in operation.

The system compensates for different types of cloth passing through the Saturator. Such systems may be manually controlled, as in this case. They may be fully automatic, the concentration in an acid or caustic bath being maintained by continuous titration.

Milton Roy engineers and supplies such systems, complete with Controlled Volume pumps and controls, for handling as many as 10 streams in exact ratio. Your inquiries are invited.

MILTON ROY COMPANY



1310 E. MERMAID AVE., CHESTNUT HILL, PHILA. 18, PA.

When inquiring check CP 5603 on handy form, pgs. 2-3

New Shriver Hydraulic Mechanism



Easy to install at moderate cost on any Shriver 24" or larger filter press now in use. Quick manipulation of the locking ring and a few strokes of hydraulic pump provide enough pressure for quick tight closing. Can be supplied as an integral part of new Shriver presses and adapted to other makes, as well.

**NEW SHRIVER
HYDRO-KLOSER**

SAVES on Filter Press Operation

- ✓ Shortens closing time.
- ✓ Ends back-breaking job of manual closing.
- ✓ Improves labor relations.
- ✓ Reduces accident costs.
- ✓ Speeds up filtration cycle.
- ✓ Quickly pays for itself.
- ✓ Easily installed.

Learn how the Hydro-Kloser can make manual closing of your filter presses practically automatic. Write for booklet.

T. SHRIVER & COMPANY, Inc., 846 Hamilton St., Harrison, N. J.

When inquiring check CP 5604 on handy form, pgs. 2-3

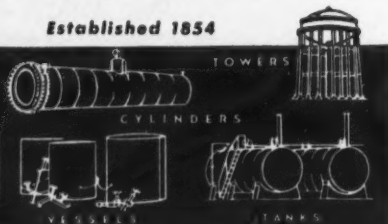


**COLE
ALUMINUM
TANKS**

We have available stock sizes from 9,500 to 22,900 gallons for pressure storage, and tanks of 99.9% pure aluminum for hydrogen peroxide from 5000 to 11,150 gallons. "Cole" can furnish tanks made of steel, aluminum and stainless steel — built in accordance with ASME Code — to meet all insurance requirements. We invite your inquiries for high pressure storage tanks, elevated tanks, acid or oil storage tanks, bins, boilers, stacks, etc.

**R.D. COLE
MANUFACTURING CO.
NEWNAN, GA.**

Established 1854



When inquiring check CP 5605 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

A armor of B-X cables cut with pocket-sized, plier-like tool . . .

cutter does not injure insulation
Uses: Cuts armor of two or three wire No. 10, 12 or 14 B-X cable. Snips cut wires to length after armor has been pulled back.

Features: Cutter is pocket-size; cuts armor clean without injuring insulation. Blade is removable for sharpening or replacement.

Description: "Ideal B-X Armor Cutter" is 10" in length; weighs 12 ozs. It is made of all steel construction; handles are formed to give a comfortable grip. Blade is made of hardened steel.

Cable is placed in jaws, and the handles squeezed. Twist parts the armor, permitting it to be pulled apart.

Source: Product of Ideal Industries, Inc., Dept. CP, 5073 Park Ave., Sycamore, Ill. . . . or for more information check CP 5606 on handy form, pages 2 and 3.

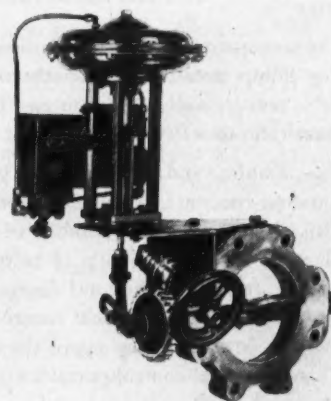
Butterfly valves control pressures to 125 psi in 3 to 12" pipe . . .

can be operated by hand or air-operated diaphragms

Uses: For process control in pipe lines from 3 through 12".

Features: Compact unit is installed with only 1 set of through-bolts.

Description: Face-to-face dimensions are small, providing ready accessibility. Valve bodies are available in carbon steel, bronze, 316 stainless steel and other materials, including plastics.



Butterfly valve can be operated by hand or by air

Vane is 316 stainless steel, can be fitted with rubber seal.

Supplied with hand jack screws, air-operated diaphragms, and valve positioners, these butterfly valves handle static line pressures to 125 psi, differential pressures to 50 psi.

More detailed information is carried



ACME the Only Gas Mask With the "PICTURE WINDOW"

You never have that "jammed-in" feeling, wearing the Acme Full-Vision Gas Mask. Its patented, larger lenses are like picture windows, giving you full natural vision for that safe, unconfined feeling. When you walk, you can actually see your toes without bobbing your head. This factor alone makes Acme outstanding among gas masks . . . well worth looking into.

Write for the complete story on Acme Gas Masks for the chemical industry.
ACME PROTECTION EQUIPMENT CO.
3037 West Lake Street, Chicago 12, Illinois

When inquiring check CP 5607 on handy form, pgs. 2-3

LENAPE STAINLESS PRESSURE VESSEL ACCESSORIES



TYPE "R" MANWAY



TYPE "R" NOZZLE WITH COVER

Designers and fabricators of tanks, pressure vessels and similar equipment are making increasing use of Lenape accessories and fittings produced in Types 304, 316, 347, etc., as well as the chrome-irons.

- HANDHOLE AND MANHOLE FITTINGS AND COVERS
- WELDING NECKS AND NOZZLES
- MANWAY NECKS AND NOZZLES
- SADDLES AND RINGS
- STUDDING OUTLETS
- PRESS-FORMED SPECIALTIES

Your prints and specifications will be given our prompt attention. Catalog 9-49 will be sent upon request.



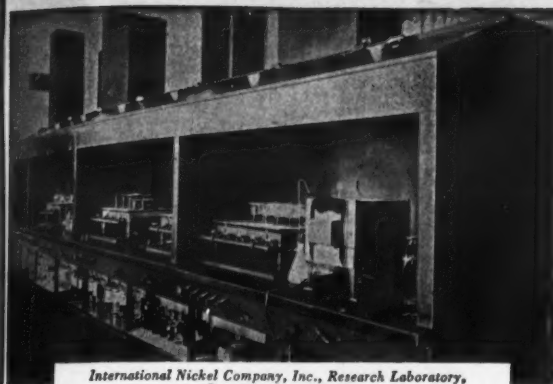
**LENAPE
HYDRAULIC PRESSING
AND FORGING CO.**

LENAPE HYDRAULIC PRESSING & FORGING CO.
DEPT. 100 WEST CHESTER, PA.

RED MAN PRODUCTS

When inquiring check CP 5608 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview



International Nickel Company, Inc., Research Laboratory,
Bayonne, New Jersey

ALBERENE FUME HOODS make Perchloric Acid handling safer!

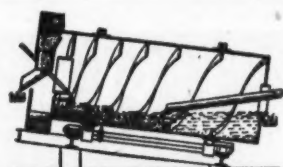
Want to take the worry out of using perchloric acid in your laboratory analyses? Now Alberene Stone Corporation offers you fume hoods *specially designed* to reduce hazards in working with perchloric acid . . . *specially designed* to give you greater safety. And for prompt advice on any of your laboratory fume problems write to Alberene Stone Corporation of Virginia, 419 Fourth Avenue, New York 16, N. Y. Or better yet — visit your nearest Alberene branch office.

ALBERENE STONE

When inquiring check CP 5609 on handy form, pgs. 2-3



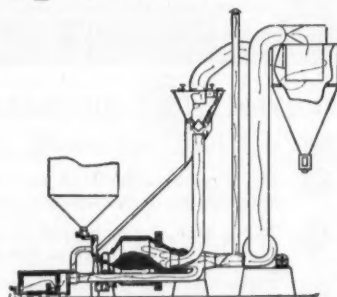
?



WET CLASSIFIER

Wet or Dry Separation?

Makes no difference to Hardinge engineers. They have the "know-how" to handle your separation or classification problems, whether your process is wet or dry. And Hardinge builds a complete line of classifiers . . . wet or dry. Write your nearest Hardinge office for further information.



DRY CLASSIFIER SYSTEM

HARDINGE

COMPANY INCORPORATED
YORK, PENNSYLVANIA — 240 Arch St. • Main Office and Works
NEW YORK 17—122 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 4
SAN FRANCISCO 11—24 California St. • 200 Bay St.—TORONTO 1

When inquiring check CP 5610 on handy form, pgs. 2-3

DECEMBER, 1949

PROCESSING EQUIPMENT

in manufacturer's Cat. 70.

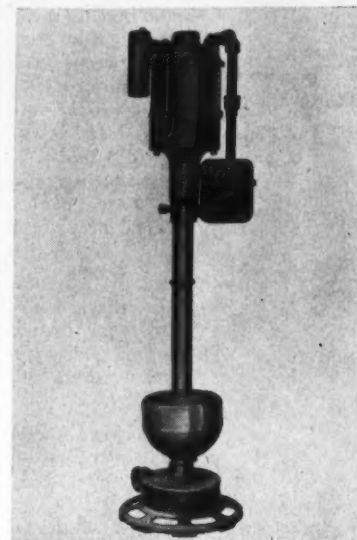
Source: Fischer & Porter Co., Dept. CP, Hatboro, Pa. . . or for more information check CP 5611 on handy form, pages 2 and 3.

Pumps sump automatically and safely, at 4000 gph, despite dust, vapor hazards . . .

pumps against 23' discharge head

Uses: Explosion-proof automatic electric sump pump of nominal 4000 gph capacity for atmospheres containing metal dust, carbon black, coal or coke dust, grain dust, gasoline, naphtha, alcohol, acetone, lacquer, etc.

Features: Cannot rust. UL approved for hazardous locations. Will operate against 23' discharge head.



Explosion-proof sump pump

Description: Copper and bronze throughout. Motor leads connect to switch terminals through threaded conduit, as required by National Electric Code. Switch housing has 1/2" pipe-size threaded outlet for connection to line. Motor and switch totally-enclosed and explosion-proof.

Switch is particularly adapted to float operation, and is controlled by extra-heavy copper float sliding freely on supporting column. An adjustable stop governs water-level at which pump starts and stops.

Series MC pumps are built in five lengths for sump depths of 2, 3, 4, 6 and 8'. All lengths furnished for 110 volt, 60 cycle, or 220 volt 60 cycle current, or other current characteristics.

Source: Penberthy Injector Company, Dept. CP, 1242 Holden Ave., Detroit 2, Mich. . . or for more information check CP 5612 on handy form, pages 2 & 3.

Never Before—So Much Sifting So Fast—In So Little Space

In the space of only 4.75 sq. ft., this #1 Abbé Turbo Sifter will screen up to 1,000 lbs. of material per hour, effectively and cleanly, separating "fines" up to 300 mesh from the "tailings". And it will do it in less time, with less power than other mechanical sifting equipment. The #0 Sifter handles up to 300 lbs./hr. in 2 1/4 sq. ft., and the large #2 Sifter separates more than 5,000 lbs./hr. in a floor space of only 2 ft. x 2 1/2 ft.

Reports on the remarkable performance of the Abbé Turbo Sifter show exceptional output with savings of as much as 80 per cent in time and labor.

Employing the centrifugal separation principle, this Sifter eliminates shaking, vibration, air separation, loss or contamination. It is quiet and dustproof.

The Abbé Turbo Sifter costs little to install and operate, as proved in many hundreds of plants. Let Catalog 65 tell you why.



Abbé Turbo Sifter

ABBÉ ENGINEERING CO.

Grinding Mills • Mixers • Sifters

When inquiring check CP 5613 on handy form, pgs. 2-3

This LAWRENCE Vertical Top-Suction Pump

will— pump volatile liquids
— against a high vacuum
— under a low NPSH (net positive suction head)

And, in addition, it cannot get air or vapor bound . . . cause delays and shutdowns.

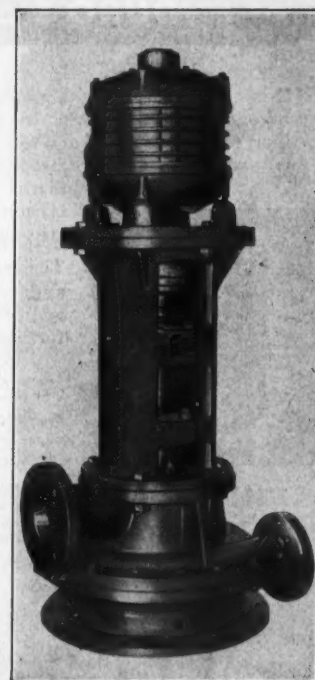
For pumping out of high-vacuum evaporators, this Lawrence pump provides the answer to all of the technical difficulties involved. Pumping problems like this have been our specialty for eighty-five years. Perhaps we can help you. Write, or phone LAWRENCE 2-4834 — no obligation.



LAWRENCE MACHINE & PUMP CORPORATION

377 MARKET STREET LAWRENCE, MASS.

When inquiring check CP 5614 on handy form, pgs. 2-3



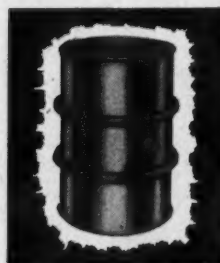
Safeguard
PRODUCT QUALITY



NILES

BARRELS AND DRUMS
of ENDURO Stainless Steel

Don't take chances with product contamination. Use barrels and drums of Enduro—the lustrous metal that is inert to most chemical and food products—that is sanitary and easy to clean—that is resistant to corrosion—that is tough and strong—that is economical to use because it lasts so long.



The NILES Line offers a type and size for every chemical and food plant need. Write us for literature.

★ ★ ★

The solid head drum at the left and the patented Ringlox drum shown above are but two of the many styles in the complete NILES Line.

NILES STEEL PRODUCTS DIVISION
REPUBLIC STEEL CORPORATION
DEPT. CP., NILES, OHIO



NILES

METAL BARRELS AND DRUMS

When inquiring check CP 5615 on handy form, pgs. 2-3

Page 100

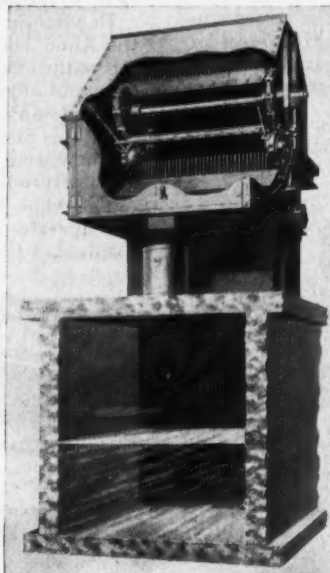
PROCESSING EQUIPMENT

Remove trash, large solids
from water, sewage . . .

special design of bar screen avoids clogging, requires less power, saves space

Uses: For removing trash and large solids at water, sewage and industrial waste treatment plants.

Features: Requires minimum floor space because screen bars are mounted vertically. Possibility of jamming, or of floating material clogging bars is practically eliminated because rake teeth travel upwards through openings between bars, from downstream side of machine.



View shows sprockets, rakes, bars of self-cleaning screen

screen are permanently-supported rack of vertical steel bars and a power-operated screen-bar cleaning mechanism. The latter employs 2 endless parallel strands of "C" class combination chain between which are fastened two or more steel rakes at evenly spaced intervals.

Rake teeth engage screen bars from downstream side, and are moved upwards through screen bars to discharge point, where screenings are discharged by a pivoted, counter-weighted mechanical wiper plate.

Screenings are discharged on upstream side of screen rack to a belt conveyor for disposal elsewhere, or into a trough from which they can be raked by hand either into a shredder or a screenings-can located directly under the steel plate enclosure of head of machine.

Machine is operated by gearmotor and encased "RC" roller chain drive connected to its head shaft. Operation may be automatic by means of a time clock, or manual by pushbuttons.

Source: "Thru-Clean Bar Screen" is made by Link Belt Co., Dept. CP, 307 North Michigan Ave., Chicago, Ill. . . . or for more information check CP 5616 on handy form, pages 2 and 3.

Combines stirrer and hot plate
in one unit . . .

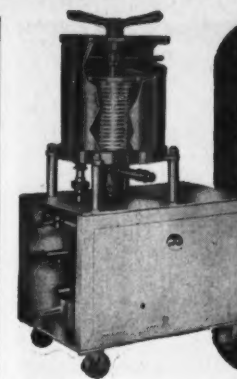
handy lab aid operates on steam or compressed air; has no electrical components

Uses: Combination magnetic stirrer and hot plate for

Rake starts upward from lowest portion of channel, below any of the material to be removed. Power consumption and wear are reduced to minimum because there is very little friction between rakes and vertical screen bars. Chain tension is easily maintained because chain take-ups are on head shaft, where they are readily accessible.

Ample overload protection is available from breaking-pin hub or "Electrofluid" drive.

Description: Primary elements of



ERTEL CYLINDER TYPE
Positive Seal
DISK FILTER

1. FILTERING ELEMENTS are independently tightened to provide positive seal.

2. OUTER CYLINDER is closed by separate handwheel to prevent drippage or evaporation.

★ This multi-purpose filter will operate with a lesser number of sheets than its rated capacity if so desired. Unit is arranged to make reloading and cleaning as easy as possible. Rigidly constructed inlet and outlet rings insure a positive seal and thus eliminate the danger of bypassing unfiltered liquid. Fully illustrated in bulletin ECD-1 which gives complete specifications.

USES: Drugs, Cosmetics, Lotions, Perfumes, Wines, Whiskies, Cordials, Rums, Cider, Extracts, Water, Syrups, Hospital Supplies, Plating Solutions such as copper, nickel, chrome, tin, Chemicals, Antiseptics, etc.

ERTEL ENGINEERING
CORPORATION

KINGSTON

NEW YORK

New York City Sales:

40 West 48th Street, N. Y. 19, N. Y.

ASBESTOS FILTER SHEETS • ASBESTOS SHEET FILTERS
CYLINDER TYPE DISC FILTERS • PYROGEN FILTERS
VACUUM BOTTLE FILTERS • PUMPS • MIXERS • CAPERS

When inquiring check CP 5617 on handy form, pgs. 2-3



PROVIDES ④ OUTSTANDING SAVINGS

- ① More Prime Surface for More Efficient Heating.
- ② Develops Quick Heat for Quick Starts. (As Much as 50% Faster Than Pipe Coil.)
- ③ Takes Half the Space, Weighs Half as Much as Pipe Coil, Costs Half as Much!
- ④ Platecoils Are Easily Cleaned or Replaced in Minutes . . . No Downtime . . . No Tank Dumping.

Take advantage of the complete laboratory assistance offered by Kold-Hold to help you with your heat transfer problems.

Send for complete technical manual and descriptive Bulletin No. P54



When inquiring check CP 5618 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

operation on steam or compressed air, stirring at steam bath or room temperatures. Safe for use with inflammable, volatile solvents and in hazardous locations, manufacturer reports, due to lack of electrical components.

Features: Eliminates time-consuming assembly of separate implements for stirring and heating.

Description: Made of machined aluminum castings with aluminum alloy, brass and stainless steel components. Top diam. 4-7/8"; overall height 2-1/8".

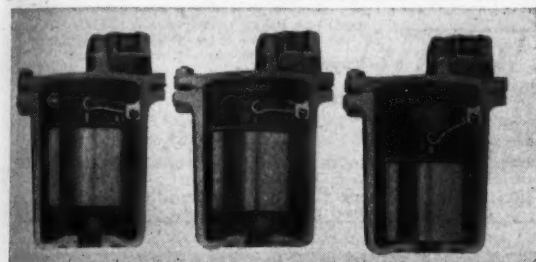
Source: New York Laboratory Supply Company, Dept. CP, 78 Varrick St., New York 13, N. Y. . . . or for more information check CP 5619 on handy form, pages 2 and 3.

Increased drainage capacity of steam trap permits use of smaller traps . . .

handles twice the condensate formerly possible; employs double fulcrum point and venting device

Uses: For drainage of condensate from steam lines.

Features: Smaller, less expensive steam trap accomplishes the drainage jobs formerly requiring larger traps.



Leverage venting doubles capacity of steam trap

Description: Drainage capacity of traps is increased by incorporating a double fulcrum point and venting mechanism.

Source: Product of the Clark Manufacturing Co., Dept. CP, 1830 E. 38th St., Cleveland 14, O. . . . or for more information check CP 5620 on handy form, pages 2 and 3.

Handy pocket-stick seals, lubricates threads in any material . . .

sealing compound does not dry out; joints are easily taken apart after its application

Uses: For sealing and lubricating threads in any type material when applied before joints are made.

Features: Stick is easily carried in pocket or tool kit. Compound does not dry out; is not affected by vibration. Protects threads from seizing or galling; pipe joints, bolts, and studs can be drawn tighter and are easily taken apart even after years of service.

Affords positive seal against gases, brine, acids, water, steam and ammonia at high and low pressures and temperatures, it is reported.

Description: As "Thread-Tite" is used, the stick may be pushed forward in its case, allowing efficient application until compound is completely used. Sticks are provided with metal caps. More information and a sample may be obtained from manufacturer.

Source: "Thread-Tite" is a product of Armite Laboratories, Dept. CP, 6609 Broad St., Los Angeles 1, Calif. . . . or for more information check CP 5621 on handy form, pages 2 and 3.

DECEMBER, 1949

For long service at lowest cost . . .

B&W **CARBON, ALLOY,** **AND STAINLESS STEEL**

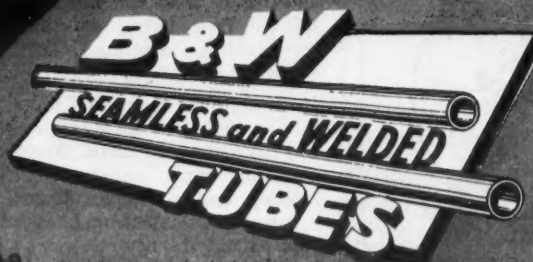
Condenser Tubes

You get...

- .. the most economical tube for each application
- .. ease of fabrication and installation
- .. service-proved quality and dependability

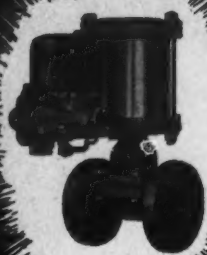
Because B&W Condenser Tubes are:

- .. Available in *seamless* and *welded* types, and a full range of carbon, alloy and stainless grades.
- .. Made to your specifications.
- .. Produced to the same high standards that account for the wide use of B&W Tubing in all other Chemical Processing services.



THE BABCOCK & WILCOX TUBE COMPANY
GENERAL OFFICES: BEAVER FALLS, PA.
PLANTS: BEAVER FALLS, PA. AND ALLIANCE, OHIO

When inquiring check CP 5622 on handy form, pgs. 2-3



HERE'S A *New* AUTOMATIC CONTROL VALVE

... cylinder operated
Diaphragm Type

- 1... **Powerful:** cylinder operated (pneumatic or hydraulic)
- 2... **Reliable:** ASCO 3-way Pilot Control Solenoid Valve
- 3... **Protected:** rubber lined contact parts

This control valve unit consists of a Saunders Patent type natural or synthetic rubber lined diaphragm type main valve with a rugged and powerful operating cylinder suitable for air or hydraulic operation. It is controlled by an ASCO 3-way Solenoid Pilot Valve. All components are assembled into one compact unit as in the 1" flanged connected unit illustrated. Sizes range from 1/2" to 3". We shall be glad to send you further information on this control valve; also our Condensed Catalog No. 200-R which describes briefly our complete line of Solenoid Operated Valves.

When in need of Automatic Transfer Switches, Remote Control Switches, Contactors, Relays, and Specialized Electromagnetic Controls, come to us.

Automatic Switch Co.

379 Lakeside Avenue • Orange, New Jersey

When inquiring check CP 5623 on handy form, pgs. 2-3

Save TIME • LABOR • DOLLARS

Brookfield

SYNCHRO-LECTRIC

Viscometer

TEST
STUDY
CONTROL

VISCOSITY

As Simply, Quickly and Easily as Taking Temperature Readings

Just a flick of switch, then read the Brookfield dial, and you have your viscosity determination in centipoises. The whole operation, including cleaning up, usually is accomplished in *less than a minute*.

Available in a variety of models suitable for extremely accurate work with a wide range of materials, both Newtonian and non-Newtonian, the Brookfield Viscometer is portable and plugs in any A.C. outlet — can be used in lab, plant, or both.

Write today for fully illustrated 8-page catalog.

NEW! Two motors and exclusive counter-rotating action make new Brookfield Laboratory Mixer quickest, most effective on market. Creates annular flow, provides scissor-like shearing, and stops messy slop-overs. Write for descriptive brochure "M".



Up to 48,000 scissor-like cuts per minute.

Brookfield

ENGINEERING LABORATORIES, INC.

Stoughton, Mass.

When inquiring check CP 5624 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

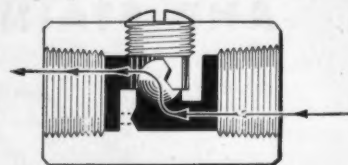
Sensitive check and needle valves . . .

units withstand up to 5000 psi, are slightly larger than pipe

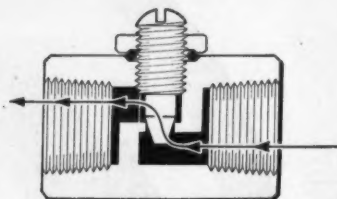
Uses: Both valves offer fine control of flow in air, hydraulic, liquid lines.

Features: Check valve can be converted into fixed orifice control valve by drilling pre-determined reverse-flow orifice through entry port of valve body.

Description: Needle valve has long tapered needle which permits fine



CHECK VALVE



NEEDLE VALVE

Compact valves for high pressure service

adjustment of flow. Check valve opens full or closes completely at slightest change in flow direction.

Both valves are compact — slightly larger than pipe size. Made of hexagon brass bar stock for pressures to 1000 psi, of steel stock for pressures to 5000 psi. Sizes from 1/8 to 3/4".

Source: Pneu-Trol Devices, Inc., Dept. CP, 3122 N. California Ave., Chicago 18, Ill. . . . or for more information check CP 5625 on handy form, pages 2 and 3.

Paste-type alloys for brazing, soldering

Detailed information on application and use of paste-type alloys for brazing, silver soldering and soft (low-temperature) soldering is contained in an 8 1/2 x 16" two-page bulletin.

New additions to manufacturer's line are announced. These include a special paste to meet Federal, Army, Navy and Air Corps specifications, silver brazing and soldering fluxes of a special type; a low-temperature soldering paste with neutral water-soluble residues which are said to eliminate costly post-cleaning operations, and special experimental kits.

LESLIE — the Reducing Valve and Temperature Regulator

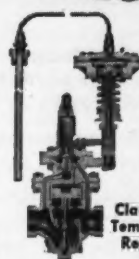
you will Want

Check the following list of features you don't expect but have always wanted to find in a Reducing Valve* or Temperature Regulator*:

1. Hardened & Ground Stainless Steel Main Valve
2. Stellite Seat for all pressures
3. Hardened & Ground Stainless Steel Pilot or Controlling Valve
4. Hardened & Ground Stainless Steel Cylinder Liner
5. Corrosion and Heat Resistant Alloy Internal Springs
6. Full Spring Temper Diaphragm for long life
7. Copper Clad Sheet Packing Gasket
8. Interchangeable Pilot Valve and Seat. Sizes 1/2" — 6" incl.

Note how Leslie gives you all of them as standard equipment.

Class L-3
Pressure
Reducing
Valve



Class LTCO
Temperature
Regulator

ESTABLISHED 1900
LESLIE
CO.

*SEND FOR Bulletin 461B — Pressure Reducing Valves
Bulletin 464A — Temperature Regulators
Bulletin 468 — Interchangeability
281 Grant Avenue Lyndhurst, New Jersey

PRESSURE REDUCING VALVES • • • PRESSURE CONTROLLERS
PUMP GOVERNORS • • • TEMPERATURE REGULATORS
SELF CLEANING STRAINERS • • • LESLIE-TYFON WHISTLES

When inquiring check CP 5626 on handy form, pgs. 2-3

First and Foremost in the FLOATLESS CONTROL FIELD



Floatless

LIQUID LEVEL and INDUSTRIAL CONTROLS

— Write for Catalog —

B/W CONTROLLER CORPORATION

2204 East Maple Road, Birmingham, Michigan

FIRST IN THE FLOATLESS CONTROL FIELD

When inquiring check CP 5627 on handy form, pgs. 2-3

MAGNASIGHT... Low Cost pipeline FLOW GAUGE

for flow rate indication
meets these specs —

FOR—Clear or Opaque fluids, slurries
CAPACITIES—3.5 to 250 gpm; 10 to 1
range
PRESSURES—to 500 psig
TEMPERATURES—to 400° F
MATERIALS OF CONSTRUCTION—Iron,
Steel, Stainless Steel, Bronze,
Aluminum
ACCURACY 2% of max. capacity
SCREWED or FLANGED pipe connections

FOR MORE DETAILS WRITE TO:

FISCHER & PORTER CO.

Dept. 9Z2-9E Hatboro, Pennsylvania



When inquiring check CP 5628 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

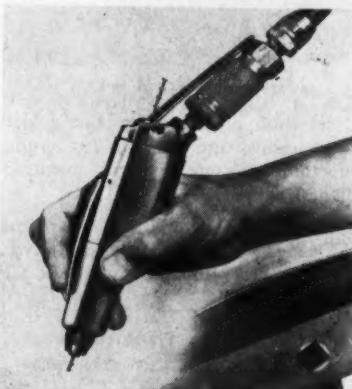
"Fusion Alloys," issued by Fusion Engineering, Dept. CP, Cleveland, O. When inquiring specify CP 5630 on handy form, pages 2 and 3.

**Screws driven pneumatically
8 times faster than by
manual methods . . .**

tool's 9/16" spindle offset permits use on size 0 or 4 screw

Uses: Specially designed to drive "screwsticks" (a development of American Screw Co., Providence, R. I.) by pneumatic means. "Screwsticks" are a series of hexagon head screws joined head end to thread end for mechanized continuous driving.

Features: Easy, quiet operation; low air consumption. Weighs only 1 3/4 lbs and measures 6 1/2" in length. Feeding pawls are made of highest quality tempered spring steel and are



Continuously drives hexagon head screws sizes 0-4

mounted close to driving point, assuring positive feed and use of maximum amount of screws on stick. Nose design gives maximum visibility.

Description: Tool has pneumatic motor with one-piece rotor and shaft mounted on precision ball and roller bearings. Clutch gear is of permanently engaged type. Momentary engagement clutch gear is available. Throttle valve is ball-type and of leak-proof design. Hose connection threads in cast-in steel inserts. Hardened steel bushings in body of driver guide the "screwsticks". Bail for vertical suspension is mounted in pressed-in steel inserts. Structural elements are made from alloy steel, heat treated. Special flexing air hose and long throttle lever contribute to ease of handling.

Source: "Screwstick" driving tool is made by Independent Pneumatic Tool Co., Dept. CP, 175 No. State St., Aurora, Ill. . . . or for more information check CP 5631 on handy form, pages 2 and 3.

Product development without capital investment!

Here is a suggestion . . .

Edwal has attained an enviable reputation for specialized research and production of plant-scale quantities of organic chemicals to order . . . custom-made in confidence for such outstanding companies as du Pont, Monsanto, Procter & Gamble and others . . . We can do the same for you.

The Edwal plant is ideally equipped and includes five production buildings, warehouse facilities and storage for explosive and inflammable compounds.

Write for full information on the confidential handling of special research and pilot-run projects.



EDWAL

SPECIAL PRODUCTS DIVISION

THE EDWAL LABORATORIES, Inc.
732 Federal Street, Chicago 5, Ill.

When inquiring check CP 5632 on handy form, pgs. 2-3

"How-to-heat" notes

For Low-cost, Efficient

LIQUID HEATING

For water, oil, electroplating baths, and many mild chemical solutions, you're almost sure to find a G-E Cal-rod* immersion heater to provide you the most practical and economical means of heating. Available in a wide range of sizes and ratings, and with thermostatic controls, G-E "screw-in" and "over-the-side" immersion heaters are easily adaptable to many of the low-temperature industrial tanks, kettles, and baths. You'll find these durably constructed heaters easy to install, low on maintenance, and moderately priced.

**BULLETIN GEA-5077
(AND CATALOG GED-650C
ARE PACKED WITH HUNDREDS OF HEATING
IDEAS. SEND FOR YOUR
COPY. General Electric Company,
Schenectady 5, N. Y. *Reg. U.S.
Pat. Off.)**

FOR ELECTROPLATING BATHS

GENERAL ELECTRIC

When inquiring check CP 5629 on handy form, pgs. 2-3

DECEMBER, 1949



ELECTROANALYZER



**NOTE THESE
EXCELLENT FEATURES—**

- Separate Controls
- Air Agitation
- Quick-change
Electrode Holders
- Built-in Rectifier

No. 26305 Cenco engineered analyzer gives quantitative measurements of the electrodeposition of metals quickly and conveniently. Six sets of fixed anode-cathode positions permit simultaneous determinations. Any single station may be quickly removed with the snap of a switch. A selector switch permits reading voltage at any one of six stations. A maximum of 5 amperes direct current can be applied to any or all of the stations. Current flowing through the circuit is controlled by a knob on the front panel. A voltmeter reading 0 to 8, an ammeter, 0 to 5, and separate controls for regulating the air or gas agitation are also mounted on the front panel. A built-in rectifier converts 115 volt, 50/60 cycle A.C. to D.C. with less than 1/2% A.C. ripple at full load.

Write for Circular 1173

CENTRAL SCIENTIFIC COMPANY

Scientific CENCO Apparatus

1700 IRVING PARK ROAD, CHICAGO 13

NEW YORK BOSTON SAN FRANCISCO NEWARK LOS ANGELES TORONTO MONTREAL

When inquiring check CP 5633 on handy form, pgs. 2-3

The FUME HOOD of the FUTURE.. is Yours Today

Kewaunee's New Low
Velocity FUME HOOD
for Handling RADIO-
ACTIVE ISOTOPES

Design Approved for Use
by the OAK RIDGE
INSTITUTE of
NUCLEAR STUDIES

No. 3600—Kewaunee's
"FUME HOOD
of the FUTURE"

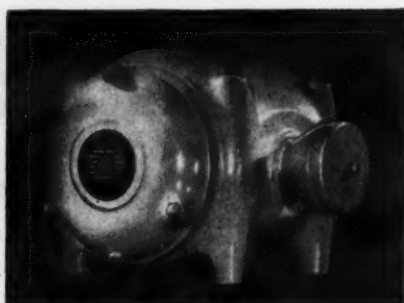
The Hood is made with stain-
less steel interiors and ducts
throughout and incorporates
a stainless steel working surface and trough. The working surface
will support a load of 4,000 pounds. The Hood incorporates a
new system of airfoils, baffles and ducts which provides a uniform
flow of air over the entire face of the Hood, thus assuring evacuation
of gases at extremely low velocities without interference from re-
verse eddies or turbulence. No auxiliary duplicate duct system for
incoming air is required.

Write for Descriptive Literature and Drawings available now on
Kewaunee No. 3600—"The Fume Hood of the Future"

Kewaunee Mfg. Co.
C. G. Campbell, President
5011 S. Center Street Adrian, Michigan
Representatives in Principal Cities

When inquiring check CP 5634 on handy form, pgs. 2-3


**SHEDS
WATER
LIKE
A DUCK**



U. S. SANITARY MOTOR

WASHABLE FOR IMMACULATE SANITATION

1/2 to 7 1/2 h.p.

Meets all
Sanitary
Standards

U. S. asbestos-protected Sanitary motors are spe-
cially designed for applications where scrupulous
sanitation is to be maintained. They are devoid
of crevices or bacteria-collecting pockets, can be
hosed and shed water "like a duck." Ideal for
chemical processing plants.

U.S. ELECTRICAL MOTORS, Inc.
200 E. Slauson Ave., Los Angeles 54, Calif.
or Milford, Connecticut

REQUEST FOR SANITARY MOTOR BULLETIN

U. S. Electrical Motors, Inc. Dept. CCP
1200 E. Slauson Ave., Los Angeles 54, Calif.
or Milford, Connecticut.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Free Bulletin

When inquiring check CP 5635 on handy form, pgs. 2-3

Page 104

PROCESSING EQUIPMENT

Improvements permit selection
of lighter, smaller
speed reducers . . .

parallel-shaft enclosed gear units have capacities to
1550 hp

Uses: Speed reducers for power transmission.

Features: Improvements on helical gear speed reducers
permit selection of smaller, lighter units. Improved gear
tooth generation,
lighter, stronger
materials, closer
tolerances, stream-
lined housing de-
sign and more pre-
cise heat treatment
are among recent
developments.

Description: Gear
drives are availa-
ble in 42 sizes with
standard ratios
ranging from
2.08:1 to 360:1.
Capacities range to
1550 hp.



Helical gear speed reducer

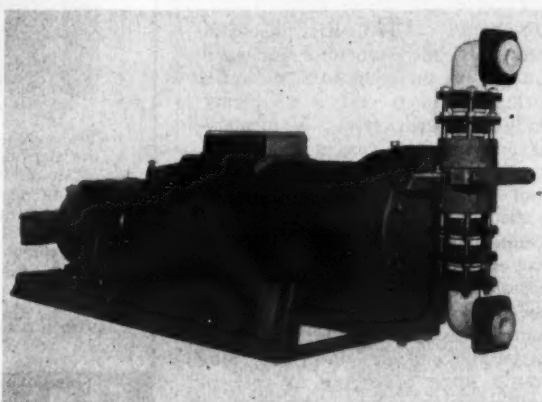
Complete ratio
data, hp-rating tables, selection procedure, overhung load
capacities, diagrams, dimensions, and weights for single,
double, and triple reduction units are given in manufac-
turer's Engineering Manual MPA.

Source: Units are made by Foote Bros. Gear and
Machine Corporation, Dept. CP, 4545 S. Western Blvd.,
Chicago 9, Ill. . . . or for more information check CP
5636 on handy form, pages 2 and 3.

Control flow of corrosives with
porcelain wet-end heads . . .

available on pumps with capacities up to 330 gph

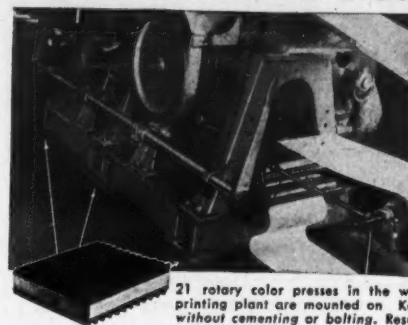
Uses: Permits successful handling of all concentrations
of all acids other than HF, of all metal salts other than
strong caustics. Carries chlorinated hydrocarbons, halo-
gens and liquids which must be kept sterile or free from
metal ion contamination.



Porcelain head on metering pump resists almost
all corrosives

Features: All parts in contact with corrosive liquid are
of solid high-fired porcelain, armored with steel jacketing.
Gaskets, valve seat and diaphragm are of inert fluorinated
hydrocarbon plastics.

It's SIMPLE To Control VIBRATION and NOISE with Elasto-Rib..



21 rotary color presses in the world's largest label
printing plant are mounted on Korfund Elasto-Rib—
without cementing or bolting. Result—perfect register
and quiet operation.

NO
BOLTING

NO
CEMENTING

LOW
COST

Elasto-Rib effectively stops transmission of vibration
and noise by utilizing the elastic and damping prop-
erties of both cork and rubber.

It is fast and easy to install. For most machine appli-
cations, no bolts, lag screws or cement are required.
Sheets 24" x 36" can be sawed or cut to size as
needed.

New, illustrated booklet tells all about Elasto-Rib and
how to install it. Ask for ER-701 and free sample.



Representatives in Principal Cities
THE KORFUND CO., INC.
48-13-E 32nd Place, Long Island City 1, N.Y.

When inquiring check CP 5637 on handy form, pgs. 2-4

PROTECT

Delicate Parts with

**Edward
STRAINERS**



At no time are delicately adjusted parts
of your pumps, traps, and valves safe
from damage by foreign matter in pipe
lines, old or new, without protection.
An Edward strainer gives you depend-
able protection and handles steam, oil,
and vapor service up to 600 lb at
850 F and hydraulic service up to
1440 lb at 100 F. Simple and practical,
there are only a few parts.

1. Body of forged steel.
2. Rustproof Monel metal perforated
screen, with straining surface about
seven times pipe area.
3. Bonnet held firmly in place by steel
union ring. Drain plug easily remov-
able to blow out accumulated for-
eign matter. Available in sizes 1/4 in.
to 2 in.

WRITE FOR
NEW BULLETIN

New free bulletin No. 101
contains latest design
details, dimensions,
weights, and main-
tenance and cleaning
information. Write now.

Edward Valves, Inc.
SUBSIDIARY OF ROCKWELL MANUFACTURING COMPANY
EAST CHICAGO, INDIANA

When inquiring check CP 5638 on handy form, pgs. 2-3

CHEMICAL PROCESSING Preview

PROCESSING EQUIPMENT

Description: Now being made for all of manufacturer's standard proportioning pumps to 330 gph capacity. Heads withstand discharge pressures up to 100 psig on large unit and up to 250 psig on small unit. Both manually adjustable and automatic control-responsive units are provided.

Source: Lapp Insulator Co., Inc., Process Equipment Div., Dept. CP, Le Roy, N. Y. . . or for more information check CP 5639 on handy form, pages 2 and 3.

Action of air-operated valve is readily reversed with ordinary wrench . . .

unnecessary to remove valve from service or shut off controlled flow



Action of control valve is easily reversed

Uses: May be employed where easy reversibility of action in air-operated control valves is desired.

Features: Valve's action is easily reversible — can be readily changed from "air to open" to "air to close", or vice versa. This requires no special tools; removing valve from its installation, or shutting down the controlled flow is unnecessary.

Description: To reverse action of the valve motor, housing assembly is removed, rotated 1/4

turn, and replaced. Requires removal and replacing of 4 bolts with ordinary wrench.

Valve is described, and the reversing action explained in detail in maker's illustrated Bulletin 2268.

Source: Product of The Foxboro Company, Dept. CP, Foxboro, Mass. . . or for more information check CP 5640 on handy form, pages 2 and 3.

Scoring, wear are negligible on tungsten carbide tipped lathe centers . . .

stand up under high spindle speeds, heavy roughing, long continuous cuts, other severe operations

Uses: Suitable for production jobs involving high spindle speeds, long continuous cuts, heavy roughing operations, other work where ordinary centers do not stand up for satisfactory length of time.

Features: Tungsten carbide tip is much harder than any tool steel; scoring and wear is therefore negligible.

Description: Centers have 60° tungsten carbide tips, are available with standard No. 2 and No. 3 Morse taper shanks.

Source: South Bend Lathe Works, Dept. CP, 355 East Madison St., South Bend 22, Ind. . . or for more information check CP 5641 on handy form, pages 2 and 3.



"Taylor Forge has thought of everything!"

A construction superintendent said it, but it has been expressed in one way or another by thousands of men who have lived and worked with Taylor Forge Welding Fittings and compared them with all other makes.

From the very start, Taylor Forge did the improving: set up a rigid, seemingly unattainable set of specifications for ideal welding fittings long before they were produced on a commercial scale.

But it was easier to think of everything than to accomplish it. Only the knowledge that Taylor Forge had accumulated, only the forging skills that Taylor Forge had developed, could have produced welding fittings that please alike the men who design piping, the men who erect piping, and the men who pay the bills.

Today in the WeldELL line, you have the fittings that ask for comparison. Some of their plus-value features—features that are combined in no other fittings—are pointed out here. Remember that the plus-value line is also the broadest line! Coupon brings catalog.

Taylor Spiral-Weld Pipe is again promptly available in a broad range of sizes and thicknesses. Coupon brings new Spiral Pipe Bulletin 493.

TAYLOR FORGE **TF**

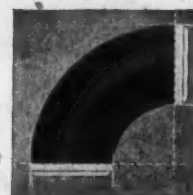
TAYLOR FORGE & PIPE WORKS P. O. Box 485, Chicago 90, Ill. • Eastern Plant: Carnegie, Pa. • Western Plant: Fontana, Calif. • District Offices: New York, Philadelphia, Pittsburgh, Houston, Los Angeles, Chicago.



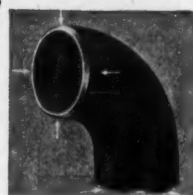
—it's easier and better the WeldELL® way—



1 Seamless throughout



2 Sized end-tangents



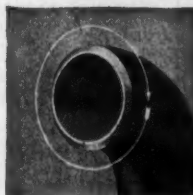
3 Precision quarter-markings



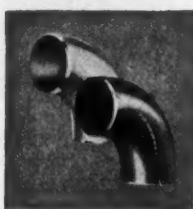
4 Engineered for full strength



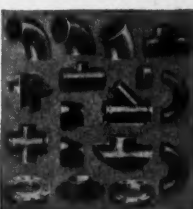
5 Clear and complete identifications



6 Machine-tool bevels and lands



7 All materials: carbon and alloy steels; corrosion resistant alloys.



8 World's widest range of sizes, types, weights.

- ☐ Please send new Catalog 484 covering welding fittings and forged steel flanges.
☐ Send new Bulletin 493 covering Taylor Spiral-Weld Pipe and related fittings.

Name

Position

Company

Street Address

City Zone State

515-1249 Mail to Taylor Forge & Pipe Works, P. O. Box 485, Chicago 90, Ill.

When inquiring check CP 5642 on handy form, pgs. 2-3

SYNTRON

Speeds Up Material Handling!



"Vibra-Flow"

VIBRATORY FEEDERS

With capacities of from ounces to hundreds of tons per hour.

— of bulk materials — hot or cold — dry or damp — from fine powders to big lumps — to crushers, grinders, belt conveyors, driers.

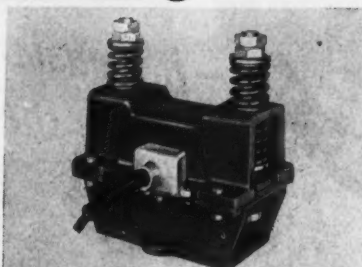
— at controlled rates, through a number of settings on the dial rheostat or reactor — from a trickling dribble to a gushing torrent — either manually or automatically.

No motors, gears, belts, pulleys, etc.

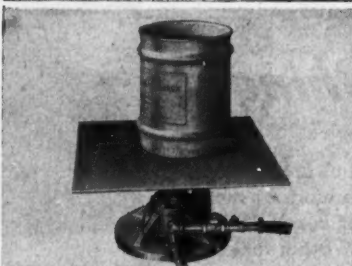
Write for illustrated folder

SYNTRON CO.

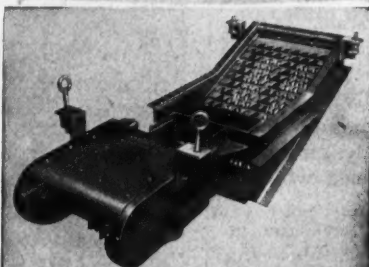
110 Lexington, Homer City, Pa.



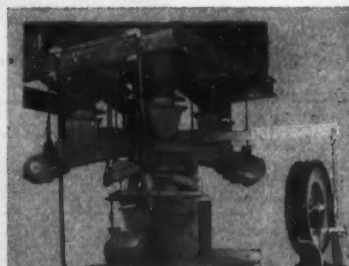
BIN VIBRATORS
Make Stubborn Materials Flow Freely



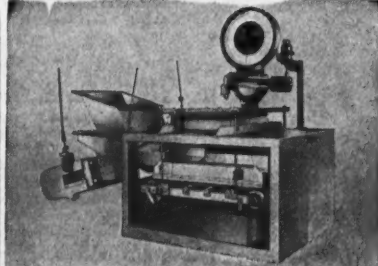
PACKERS and JOLTERS
Electric-Hydraulic-Pneumatic



VIBRATING SCREENS
Wet or Dry — Single or Multiple Decks



"Automatic" BATCH WEIGHING
Scale—Controlled Vibratory Feeders



"CONSTANT WEIGHT" FEEDERS
Accurate, Continuous Feed by Weight

When inquiring check CP 5643 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

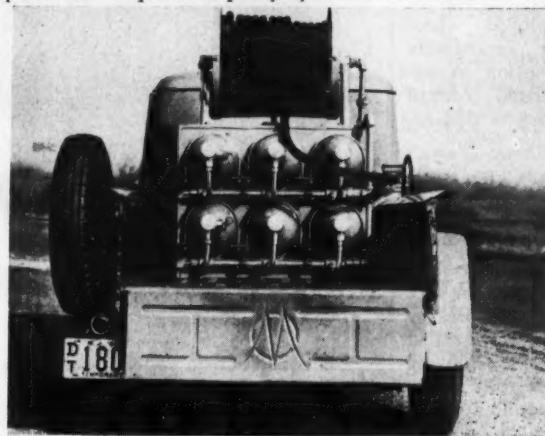
Compact fire protection unit is readily installed on 1-ton trucks . . .

carbon dioxide cylinders discharge at high pressure through flexible hose and multi-jet nozzle

Uses: Units for mobile fire protection at airports, oil fields, dock yards, utility stations, and for use by industrial and municipal fire departments.

Features: Compact multi-cylinder and hose reel unit can be easily installed on any 1-ton truck body. Cylinders are arranged to discharge in 2 groups of 3.

Description: Illustration shows unit installed on a 1-ton Willys Jeep. Mounted directly behind the cab, unit comprises six 75 pound capacity cylinders of carbon dioxide.



Compact carbon dioxide cylinder and hose reel unit for mobile fire protection

Cylinders discharge at high pressure.

Carbon dioxide released from the cylinders passes through gas-tight piping into the hollow trunnion of the hose reel, through the flexible hose, and out a multi-jet discharge nozzle.

Hose reel is mounted over the cylinder bank. Brake prevents excessive uncoiling of the hose. Multi-jet nozzle is carried directly behind the cab on the right side for accessibility.

Jeep fire truck illustrated develops a speed of approximately 45 mph within 1 minute from standstill when fully loaded.

Source: Development of the Walter Kidde & Company, Inc., Dept. CP, 40 East 34th St., New York 16, N. Y. . . . or for more information check CP 5644 on handy form pages 2 and 3.

Clean confined areas with shoulder-slung vacuum cleaner . . .

both hands are free to operate unit; many attachments are available for spraying, salvaging, etc.

Uses: For vacuum cleaning in confined areas, such as under work benches and machinery, stock bins and storage shelves, in overhead piping, etc. Spraying and salvaging operations are possible with attachments.

Features: Cast aluminum motor housing eliminates excessive operating heat. Vacuum cleaner has strong, steady suction; is fully portable by shoulder strap, leaving both hands free.

Description: The "Tornado" portable vacuum cleaner is available in 4 sizes, equipped with 1/3, 3/5, 1, and

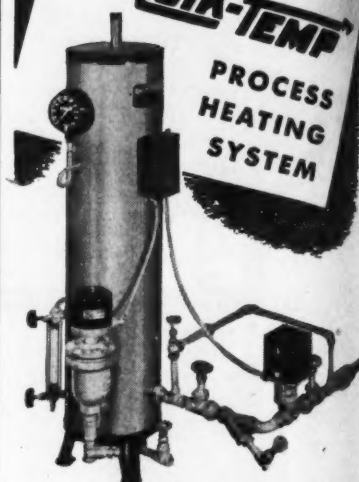
YOU CAN TRIM PROCESSING COSTS—

NOW

by installing a **SCHAUB**

"QUIK-TEMP"

**PROCESS
HEATING
SYSTEM**



Only "QUIK-TEMP" Gives All of These Guaranteed Results:

- More Production Through Higher Rate of Heat Transfer
- Saves Steam and Fuel
- Eliminates Trap Maintenance

Increase profit margins by slashing processing costs with Schaub "QUIK-TEMP". Faster heat up assures more output from the same machines. WE GUARANTEE AT LEAST 10% INCREASE IN OUTPUT — AT NO EXTRA COST!

Higher sustained temperatures increase equipment efficiency. Steam traps are eliminated. That means no more balky traps to cause shutdowns — no wasted steam — no costly trap maintenance.

"QUIK-TEMP" works efficiently with existing steam-using equipment.

Write immediately for full information . . . and data on possible savings.

**FRED H. SCHAUB
ENGINEERING CO., Inc.**

2113 South Marshall Blvd., Chicago 23, Illinois

When inquiring check CP 5645 on handy form, pgs. 2-3



How To Prevent 'Skin Trouble'

(on Tanks,—Metal-Work)

Frequent costly maintenance, and even failures, can result where metal exteriors are not adequately protected from corrosive fumes. A tank's lining may be 100% corrosion-proof while its shell is afflicted with corrosive 'skin trouble'! Pyroflex Lacquer protects your tanks and metal-work with a tough surface coating that will withstand severe corrosive conditions.

Although it can be applied by brush or spray gun it is not an ordinary paint. Pyroflex Lacquer is an improved formulation of inert synthetic resins. It is impervious to acid, alkalis, oils, grease, alcohols, water and a variety of other corrosive agents.

Pyroflex Lacquer may be applied to metal, concrete, wood, or previously painted surfaces, no primer coat is required. It is available in colors: gray, clear, red, yellow, green, black, aluminum and white, and is shipped in one-, five- and fifty-gallon containers.

MAURICE A. KNIGHT
412 Kelly Ave., Akron 6, Ohio

**Pyroflex
Lacquer**

When inquiring check-CP 5646
on handy form, pgs. 2-3

DECEMBER, 1949

PROCESSING EQUIPMENT



Portable unit cleans confined areas

1-1/3 h.p. universal motors weighing from 7 to 16 lbs. Motors are mounted on permanently sealed bearings requiring no lubrication.

Air intakes and suction openings are designed to secure a concentrated flow of air for cleaning. Flow is 53 cfm. in the smaller models, and 86 cfm. in the 1-1/3 hp. size. Aluminum motor housing is fully enclosed in a light weight aluminum fan housing designed for maximum suction.

Cleaner is supplied with 20' of cable for connection to standard outlets, has shoulder strap, 4' flexible hose connector, dust-proof bag and 4 nozzle and cleaning attachments. Many special attachments are available from the manufacturer, including sprayers, salvaging units, etc.

Source: Product of the Breuer Electric Mfg. Co., Dept. CP, 5100 Ravenswood Ave., Chicago 40, Ill. . . . or for more information check CP 5647 on handy form, pages 2 and 3.

Store parts systematically in revolving bins . . .

parts instantly available for assembly or various repair operations; shelves revolve on bearings

Uses: For convenient and systematic storing of small parts.

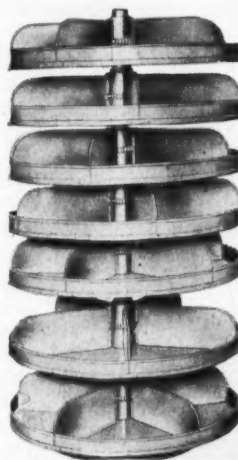
Features: Increases visibility and availability of stored parts. Shelves are stabilized to prevent sagging when unevenly loaded. Broad spacing prevents tipping.

Description: Made in 7-shelf, 4-shelf and counter-top revolving styles. Seven-shelf and 4-shelf units have diameters of 34" and heights of 65-11/16" and 37-11/16" respectively. Counter-top unit has 17" diameter and is 18 3/8" high. All units have green baked-on enamel finish.

Shelves revolve easily in either direction on ball bearing rollers.

Each shelf has a continuous label holder. Up to 5 additional dividers can be added to separate each bin into smaller openings.

Source: Lyon Metal Products, Inc., Dept. CP, Aurora, Ill. . . . or for more information check CP 5648 on handy form, pages 2 and 3.



Revolving parts bin

Out of the Clark

RESEARCH
LABORATORIES

comes the

BIGGEST STEAM TRAP NEWS in 50 years!



INCREASES TRAP DRAINAGE CAPACITY OVER 100%!

Duo-Step Leverage — can save thousands of dollars annually for steam trap users . . . in lower initial cost and greater drainage efficiency.

DUO-STEP LEVERAGE NOW AVAILABLE IN THESE CLARK STEAM TRAPS
"71-D", "80-D" SERIES and "1800-D", "1900-D" SERIES

Clark



Send for the
story on Clark
DUO-STEP
Leverage today!

When inquiring check CP 5649 on handy form, pgs. 2-3



QUESTION:

Which Garlock rod packing automatically adjusts itself to changing pressures?

ANSWER:

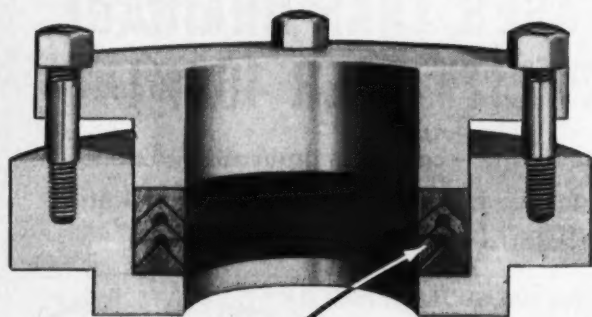
CHEVRON*

*Reg. U.S. Pat. Off.

GARLOCK CHEVRON Packing is truly an automatic packing. The distinctive and exclusive hinge-like shape of CHEVRON packing makes it extremely sensitive to pressure changes. On the power stroke or with increasing pressures CHEVRON rings automatically tighten and prevent leakage; on the return stroke or with diminishing pressures the packing eases off, permitting free operation of the rod and reducing friction to a minimum.

For long life and dependable service, specify CHEVRON packing. GARLOCK 430 CHEVRON for hydraulic service; 431 for oils at low temperatures; 530 for steam, air or gas; 531 for hot oils.

THE GARLOCK PACKING CO., PALMYRA, N. Y.
In Canada: The Garlock Packing Co. of Canada Ltd., Montreal, Que.



**NOTE EXCLUSIVE
HINGE-LIKE
CONSTRUCTION**

GARLOCK

When inquiring check CP 5650 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Gas-tight seal of mask gives full protection against dusts . . .

has full-vision, non-fogging lenses; lightweight, positive-acting valves; replaceable filter

Uses: For complete facial and respiratory protection against nuisance and harmful dusts.

Features: Lightweight, flexible, all-rubber face-piece covers entire face. Efficient filtering of dusts, with low breathing resistance, is offered by large-area throw-away filter. Molded rubber air-deflectors direct incoming filtered air over inside surface of lens to prevent fogging.

Description: Full vision design utilizes wide area lenses. Filter is encased in sturdy aluminum container, placed low on mask so that vision will not be obstructed. Positive-acting rubber valves assure easy exhalation. Adjustable head bands fit without excessive tension. Filter is easily replaced.

Source: All-Vision dust mask is made by Mine Safety Appliances Co., Dept. CP, Braddock, Thomas & Meade Sts., Pittsburgh, Pa. . . or for more information check CP 5651 on handy form, pages 2 and 3.

Collar and self-closing lid converts used drum to oily-waste can . . .

fusible link melts when temperature reaches 160°F; slams lid shut, smothering flames



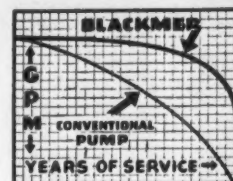
Self-closing drum cover

Attaches to drum by a single bolt, tightening the steel band. Wing nut speeds assembly.

Uses: Collar-and-lid attachment for converting used 30 and 55-gal drums to containers for oily waste, other combustibles.

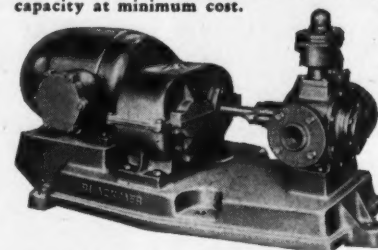
Features: Self-closing: when temperature within or surrounding drum reaches 160°F, a fusible link melts, releasing spring-loaded plunger. Cover closes instantly, smothering fire within drum, or protecting drum-contents from outside ignition.

BLACKMER ROTARY PUMP PERFORMANCE



CUTS Liquid Handling COSTS

Vanes automatically compensate for wear to maintain high efficiency and low power costs. When vanes eventually wear out, simple replacement restores pump to normal capacity at minimum cost.



Swinging Vanes



Sliding Vanes

Capacities from 5 to 1500 g.p.m. Temperatures to 600° F. Complete operating data in Bulletin 307, "Facts About Rotary Pumps." Tells how Blackmer pumps cut costs. Write for your copy.

Choice of two constructions provides efficiency not obtainable with "universal" type pumps.

**BLACKMER PUMP COMPANY
GRAND RAPIDS, MICHIGAN**

When inquiring check CP 5652 on handy form, pgs. 2-3



BLENDING AND SORTING WITH VACUUM

This Spencer Vacuum Producer is located between two huge storage tanks on the roof of a large chemical plant. Dried plastic granules are picked up from the trays with a Spencer "Gulper" tool as they come from the ovens. One tray containing 10 pounds of material is emptied in one minute. The plastic is then conveyed by vacuum to the roof, 35 feet above and is separated by the Spencer Centrifugal Separator and then dropped down over vibrating screens.

150 USES FOR VACUUM...ASK FOR BULLETIN
SPENCER VACUUM
HARTFORD CLEANING
THE SPENCER TURBINE COMPANY, HARTFORD 6, CONN.

When inquiring check CP 5653 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

Description: Constructed of heavy-gauge steel in two sizes, 30 and 55 gal.

Source: The Protectoseal Company, Dept. CP, 1920 South Western Ave., Chicago 8, Ill. . . . or for more information check CP 5654 on handy form, pages 2 and 3.

Stepless speed control can be adjusted with fingertip pressure . . .

vertical-mounted drive has totally-enclosed motor, pulleys, shafts, belts, gears contained in housing

Uses: For powering agitator drives, mixers, pumps, other set-ups which require speed control.

Features: Large, easy to read speed indicator gives stepless control of speeds. Fingertip pressure adjusts control.

Description: Compact assembly includes totally-enclosed motor, pulleys, shafts, helical gears and speed control unit. Drive is vertically mounted.

Labyrinth seals, heavy duty ball bearings and herringbone rotor reduce maintenance requirements.

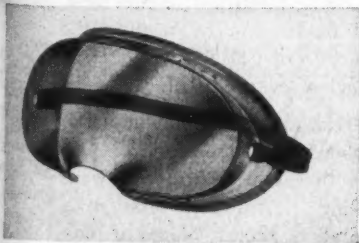
Source: Sterling Electric Motors, Inc., Dept. CP, 5401 Anaheim-Telegraph Rd., Los Angeles 22, Calif. . . . or for more information check CP 5655 on handy form, pages 2 and 3.

Fractional-ounce eye shield does not impair vision, is non-fogging . . .

can be worn over most personal glasses; has adjustable elastic head band

Uses: Affords protection from impact, dust, flying sparks, and chips in buffing, polishing, light assembly, spot-welding, other tasks in which eyes are endangered.

Features: Sturdy plastic mask weighs 97/100 of an ounce; permits vision in all directions. Ample air space and ventilation prevent fogging. Can be worn comfortably over most personal glasses; has easy-to-adjust elastic head band.



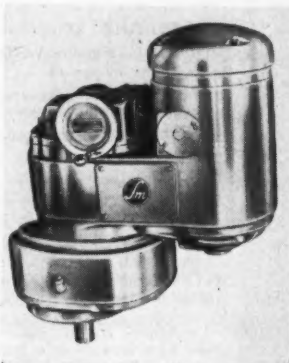
Light weight safety goggle

Description: "Coverlite" has an injection molded, non-flammable plastic frame with large frontal area. Weight of goggle

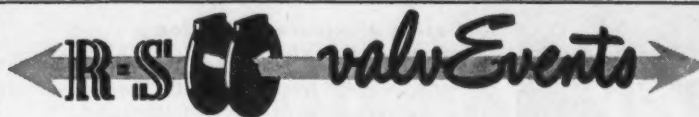
is distributed evenly over nose, brow, and cheeks. Workers report they are hardly conscious of wearing them.

Goggle is available with clear, light green, or dark transparent frames.

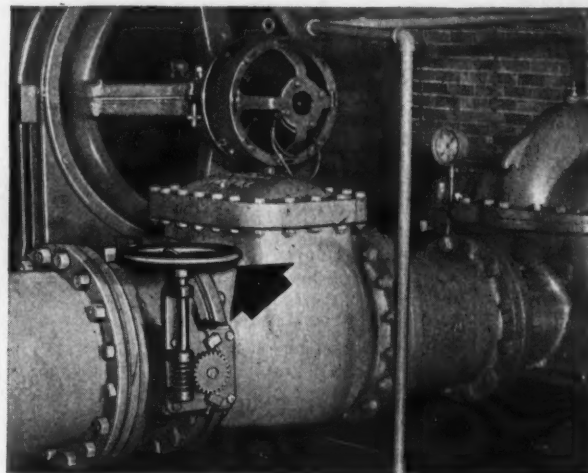
Source: Product of the Chicago Eye Shield Company, Dept. CP, 2300 Warren Blvd., Chicago 12, Ill. . . . or for more information check CP 5656 on handy form, pages 2 and 3.



Variable-speed drive gives stepless speed control



• EXCERPTS FROM THE R-S BOOK OF EXPERIENCE •



6 HANDWHEEL TURNS OPEN OR CLOSE VALVE

This quick closing feature is an important consideration in water pumping operations as illustrated above or any application where a battery of synchronous driven pumps discharges into a common header.

Normal procedure when starting a pump is to shut off the discharge valve until the pump has gained the desired speed. The valve is then opened gradually. Since it requires only a few seconds of an operator's time, this important operation is not likely to be neglected when R-S Valves are installed. Burned-out motors at start-ups can be practically eliminated.

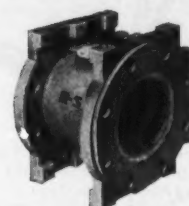
R-S Valves show substantial savings in pumping power due to low pressure drop. Consider also the compact design, light weight and self-cleaning features.

Consult with your local R-S representative. Look for the address and phone number listed under "R-S Products, Valves" or write direct.

R-S PRODUCTS CORPORATION
Wayne Junction • Philadelphia 44, Pa.



Sectional view shows beveled vane of R-S Valve firmly seated at a 12½° angle. A metal-to-metal seat gives satisfactory commercial shut-off in many cases. Manual or automatic control available.



Drip tight or bubble tight closure can be obtained with a rubber seat. Under pressure, due to the 12½° angle of closure, the rubber yields both radially and longitudinally around the shaft-hosses and the periphery of the valve vane to insure positive shut-off.



No. 709 30-inch 50-pound valve equipped with rubber seat. Air bubble tight at 80 psig and drip tight with water at 100 psig. Fully enclosed gear reduction drive. Every R-S Valve is available in smaller and larger sizes, in all materials and for lower and higher pressures.



New!

Catalog No. 18 featuring R-S 50-pound valves is just off the press. Ask for it!

When inquiring check CP 5657 on handy form, pgs. 2-3

Airetool

can help you prosper
in the **FIFTIES**



Midget type cleaner for $\frac{1}{2}$ " I. D. to $1\frac{1}{2}$ " I. D. tubes. One of the many air-powered Airetool tube cleaners for removing hard scale from small tubes.

Airetool G-1200 type condenser and heat exchanger expander with frictionless ball bearing thrust for tubes $\frac{1}{2}$ " to $1\frac{1}{2}$ " O. D.

To prosper in the next decade your industry must concentrate on quality, productivity and efficiency. Every purchase of materials, supplies, equipment and tools must be made with this in mind.

AIRETOOL tube cleaners, expanders and accessory tools are designed to provide users competitive advantages. Faster work . . . less "down" time . . . lower tube maintenance costs . . . longer tube and tool life are just a few.

Prepare for the fifties now by anticipating your tube cleaning—tube expanding requirements. An AIRETOOL illustrated catalog will show you what to buy. Write for your free copy to The AIRETOOL Mfg. Co., 331 S. Center St., Springfield, Ohio.



There's an AIRETOOL tube cleaner and tube expander for every type of tubular construction.

PROCESSING EQUIPMENT

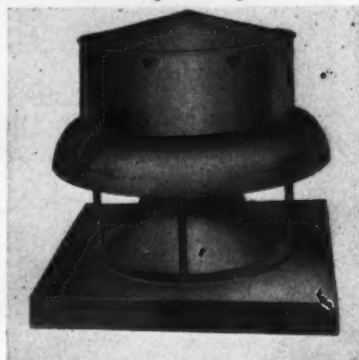
Design eliminates corrosion of motor in exhauster . . .

powered air-exhaust unit connects directly to air ducts; utilizes waste roof space

Uses: For expulsion of air from working areas, processes, etc.

Features: Motor is enclosed and out of air stream, eliminating corrosive action by moisture or chemical fumes, as well as explosive danger. Unit is completely weatherproof. Air is directed down onto roof by outlet designed to prevent blow-back. No back-draft damper is needed.

Description: Exhauster uses squirrel-cage fan with blade designed for positive air expulsion. Motors have grease-sealed bearings. Unit can be furnished in special metals if required. Capacities range from 150 to 12,000 cfm.



Exhauster is designed to prevent blow-back

Installation is economical since the unit is connected directly to ducts and occupies wasted roof space. "Penthouse" installations are not required.

Source: Product of The Gallaher Company, Dept. CP, Omaha, Neb. . . . or for more information check CP 5659 on handy form, pages 2 and 3.

Injects fixed amount of oil into slow-moving conveyor wheel bearings . . .

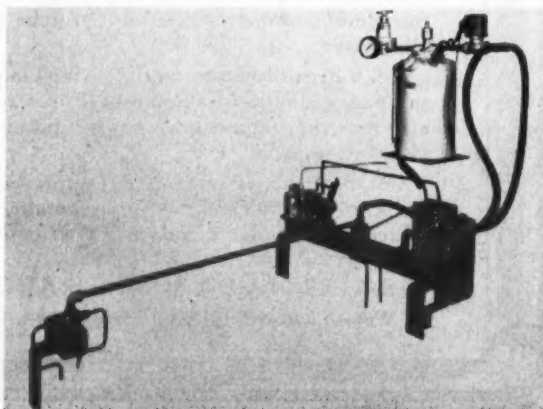
automatic oil lubricator used with slat conveyor which moves 3 feet per hour

Uses: For positive timing and automatic oil-lubrication of slat conveyors.

Features: Injects pre-set amount of oiled air into the wheel bearings.

Description: Timers are required on lubricator installations where the speed of the conveyor is slow.

Wheels on outside of the slat conveyor actuate a tripping



Automatic oil lubricator for slow-moving conveyors

For pumping acids, caustics, slurries, viscous liquids, specify . . .

JABSCO

Corrosion Resistant
PUMPS

Patented
and Pats.
Pend.



SELF PRIMING. Obtains vacuum in excess of 26".

VERSATILE. Handles variety of liquids and slurries at wide range of speeds.

SAFE. Self-priming feature permits cleaner, safer, more accessible installations.

SIMPLE. Easily and quickly disassembled for cleaning.

TROUBLE FREE. Impeller lubricated by liquid pumped. No oil or grease cups. No packing. No metal to metal contact of moving parts. Ball Bearings.

MORE CAPACITY for its size and price than any other type of pump. Capacities up to 56 GPM.

FLEXIBLE IMPELLER. Odorless, tasteless, non-toxic corrosion resistant neoprene—also gum rubber if specified.

Stainless Steel Models available in $\frac{1}{8}$ ", 1", $1\frac{1}{2}$ " port sizes.
Bronze Models available in $\frac{1}{4}$ " up to $1\frac{1}{4}$ " port sizes.
Cast Iron Models available in 1", $1\frac{1}{4}$ " port sizes.

JABSCO PUMP COMPANY
2031 LINCOLN STREET • BURBANK, CALIFORNIA

When inquiring check CP 5660 on handy form, pgs. 2-3

BRIEFS...

*from contemporary
publications*

READ THEM . . . IN THIS ISSUE.

You get a "quick look" at the most valuable articles being published in this field, and kindred fields . . . by reading the "BRIEFS" section of CHEMICAL PROCESSING Preview every month.

Our Editors read more than 50 contemporary publications every month . . . select those articles they believe you will want to know about . . . and, in terse style, they tell you about them. Name of publication and issue are given so you can read those you want to know more about.

It's a monthly service . . . to save you time . . . yet keep you informed. See "BRIEFS" in this issue, page 56.

mechanism, which in turn actuates a micro switch. This energizes timer that controls the operation of straight-away solenoid valve. Valve remains open until closed by the timer, thus allowing a measured amount of oiled air to be injected into the wheel bearings.

Source: Designed and built by The J. N. Fauver Co., Inc., Dept. CP, 49 West Hancock, Detroit 1, Mich. . . . or for more information check CP 5661 on handy form, pages 2 and 3.

Water hammer eliminated by variable adjustment of solenoid valve . . .

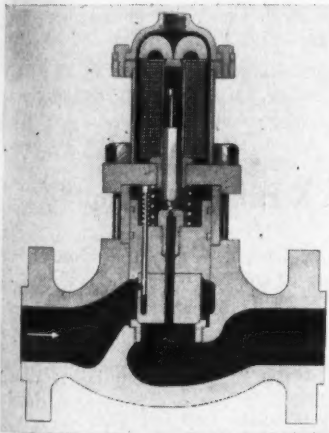
packless valve is suitable for temps to 1000°F; has only 3 moving parts

Uses: Suitable for oil and oil vapor service with temps to 1000°F; for steam, water, oil, gas and general service with temps to 850°F.

Features: Slightest water hammer is eliminated by variable closing of the valve proper. This is accomplished by adjusting rod-like member in the piston which acts as a timing valve.

Valve is packless; has only 3 moving parts. Operates from 6-volt storage battery.

Description: Cross-sectional view of this solenoid operated valve shows forged steel body with the disc and seat made of wear resisting alloy. Valve has been designed for maximum strength and long life.



Solenoid operated valve does not cause water hammer

To open valve, a button is pressed momentarily. Solenoid lifts the armature—opening the pilot valve which is held open by permanent magnets. To close valve, the lower solenoid is momentarily energized—pulling the armature down and closing

the pilot valve.

Forged steel valves are made in sizes from 1/2 to 2", screwed or flanged. Corrosion resistant valves ranging in size from 1/4 to 3" and high-pressure corrosion resistant types from 1 to 10" are available in wide selection of alloys.

Source: "Electro-Hydraulic" solenoid valves are a development of the Hoppe Engineering Company, Dept. CP, Greensboro, Ind. . . . or for more information check CP 5662 on handy form, pages 2 and 3.

Description of new tools for analytical chemists

Wide variety of laboratory equipment is listed in 32-page 3-color illustrated catalog. Description of each piece of apparatus and its price are given.

Instrument repair service is outlined. "Waco Catalyst" Vol. 8, issued by the Wilkens-Anderson Company, Dept. CP, 111 N. Canal St., Chicago 6, Ill. When inquiring specify CP 5663 on handy form, pages 2 and 3.

DECEMBER, 1949

YOU CAN'T AFFORD TO IGNORE THIS OFFER (REALLY)

There's a well equipped laboratory, staffed with highly trained and skilled technicians ready to go to work for you tomorrow morning—at no cost to you and without one iota of obligation on your part.

The laboratory is maintained by Proctor & Schwartz, Inc., of Philadelphia, designers and manufacturers of industrial drying equipment. It is operated for the *mutual* benefit of industries with drying problems—and, of course, for Proctor & Schwartz. We'd be utterly foolish to even intimate otherwise.

Into this laboratory every day, come widely divergent drying problems from many different industries and all parts of the world. Proctor engineers, utilizing all of the resources at their command, try to solve these problems. Some can be solved with a few hours of test work. Others take months of study and some remain unsolved or prove impractical. The manufacturer who places his drying problem in Proctor engineers' hands, has taken the first step in the right direction, for these men are trained in the art of drying, they have at their fingertips important data and findings of drying studies made during the last half century. For all of this, the prospective customer does not pay one penny. Of course, as each new problem comes in, it is our hope that the solution will indicate a place for the application of Proctor drying equipment. You can't blame us for that. However, often the results of much comprehensive study will reveal some other drying process to be the answer—rather than the atmospheric type of equipment manufactured by Proctor & Schwartz.

In that case, the results of the research are discussed with the client—They say, "thank you", we say, "you're welcome, sorry that your product isn't suited to our particular type of equipment". No money exchanges hands—for remember, we said, "no cost or obligation".

If the study indicates Proctor equipment to be suitable—the findings of the research are passed on to the preliminary engineering department and recommendations for a dryer design are made.

Regardless of the outcome of the research, YOU STAND TO BENEFIT. If it indicates Proctor equipment is not the answer—you've had \$100 or \$1,000 worth of research conducted for you absolutely free. If it finds Proctor equipment suited to your needs—you have the assurance that your drying equipment recommended, will be engineered on FACTS to suit your individual needs . . . and you'll still pay nothing for the research and test work.

See what we mean—you can't afford to ignore this offer. If you have a drying problem, don't waste time, manpower and money trying to solve it. Turn it over to Proctor engineers. IT WILL NOT COST YOU ONE RED CENT TO ENLIST THEIR AID AND SKILL. Write today . . . or call Michigan 4-6400. If you are not considering a drying problem at the moment—tear out this page so that you will not forget it when a problem comes along.

PROCTOR & SCHWARTZ, INC.
663 TABOR ROAD
PHILA. 20, PA. MICHIGAN 4-6400

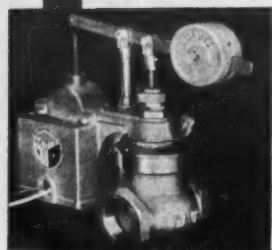
When inquiring check CP 5664 on handy form, pgs. 2-3

DAVIS SOLENOID VALVES

for —Steam, Air, Water, Oil

**Applications,
Extreme Accuracy
Sizes 1/2" to 12"
Pressures to
1500 Lbs.**

Davis No. 93 single-seated pilot operated solenoid valve. Sizes 1/2" to 4" for gas, steam or liquid service.



Davis Solenoid Valves are operated by any device that will make or break an electrical circuit, and are furnished either normally open or normally closed—explosion proof if desired.

Davis valves adapted to solenoid operation includes: single seated valves for high or low pressure, balanced valves, butterfly valves, and 3 or 4-way pilot valves. Reciprocating or rotary stem type. For extreme accuracy, the Davis Two-Step Solenoid Valve is available.

Write today for details



2562 SOUTH WASHTENAW AVENUE, CHICAGO 8, ILL.

When inquiring check CP 5665 on handy form, pgs. 2-3

Skin Irritations



**EFFICIENCY
IS SKIN DEEP**

You can't expect top production efficiency when skin irritations plague your plant workers—causing absenteeism and slow-downs. TARBONIS has a long record in hundreds of plants for overcoming and guarding against the recurrence of skin irritations.

- COMMON
SKIN IRRITANTS**
- Cutting Oils
 - Chrome Dyes
 - Sodium Bichromates
 - Lime
 - Metal Dust
 - Urea and Phenol
 - Plastic Compounds
 - Naphtha
 - Detergents

.....

THE TARBONIS COMPANY, Dept. CPP
4300 Euclid Ave., Cleveland 3, Ohio

Please send me a sample of TARBONIS

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

BY _____ DEPT. _____

When inquiring check CP 5666 on handy form, pgs. 2-3

PROCESSING EQUIPMENT

**Highly corrosive wet, dry gases
delivered at pressures, volumes
up to 5000 psi, 2000 cfm . . .**

precision-control regulators safety engineered to difficult applications; handle wet chlorine, etc.

Uses: Corrosion-resistant pressure regulators for precision control of many gases, wet or dry, including chlorine, sulphur dioxide, hydrogen sulphide, ammonia and boron trifluoride.

Features: Safety-engineered to each application.



Pressure regulators

Description: Required corrosion-resistance can be developed into many of manufacturer's standard regulators, and delivery pressures up to 5000 psi, gas volumes up to 2000 cfm, remote control, precision regulation and greater compactness can be incorporated in new models.

Large-volume self-seating relief valves can be supplied to function at any pressure from 1 to 2000 psi. These are available in a design for venting to safe location.

Source: Victor Equipment Company, Dept. CP, 844 Folsom St., San Francisco 7, Calif. . . . or for more information check CP 5667 on handy form, pages 2 and 3.

Laboratory facilities for research, development

Expanded facilities of The Franklin Institute's research and development laboratories, showing some of the investigations for which this organization is equipped, are set forth in a 40-page illustrated booklet. A few of the subjects covered include solid state physics, high polymer research, radiation, simulators, magnetic recording, etc.

Issued by The Franklin Institute of the State of Pennsylvania, Dept. CP, Philadelphia 3, Pa. When inquiring specify CP 5668 on handy form, pages 2 & 3.

Colored flow diagrams show multi-jet condenser uses

Colored diagrams illustrate typical applications of low-level multi-jet condensers in a 12-page booklet. Cut-away views and sectional drawings show construction.

Sizes, capacities, overall dimensions and weights are presented, and properties of saturated steam are tabulated. Bul. 5-A, issued by Schutte and Koerting Company, Dept. CP, 12th and Thompson Sts., Philadelphia 22, Pa. When inquiring specify CP 5669 on handy form, pages 2 and 3.

Coating assures firm grip, even in lubricants and liquids . . .

coated fabric gloves wear longer, handle heavy metal pieces; highly chemical-resistant

Uses: Coated fabric work gloves for effective gripping

action in liquids, including lubricants, and for handling heavy metal pieces.

Features: Resistance to chemicals is higher than rubber or standard synthetics, manufacturer reports. Coating will not crack or peel. Non-slip, highly abrasion-resistant and long-wearing.

Said to wear 18 times as long, handle 18 times as many heavy metal pieces as stout hot mill gloves heavily reinforced with friction tape, in on-the-job field tests, cutting about 94% off glove costs in this handling operation. (Manufacturer's estimate is based on initial costs of gloves and comparative wear.)

Description: Incorporates man-



Non-slip work gloves

ufacturer's "Griptite" finish cured into coating of Suresal PK coated fabric work gloves. Furnished in knit wrist, band top, safety cuff and gauntlet types, most styles with or without ventilated back, as desired. All styles molded to comfortable curved finger design.

Source: Surety Rubber Company, Dept. CP, 212 Hall Ave., Carrollton, O. . . . or for more information check CP 5670 on handy form, pages 2 and 3.

Convention & Exhibit Schedule

Dec. 29-30. American Chemical Society, Division of Industrial & Engineering Chemistry, Columbus, Ohio.

1950

Jan. 11-13. National Society of Plastic Engineers, Hotel Carter, Cleveland, Ohio.

Jan. 16-19. Plant Maintenance Show, Auditorium, Cleveland, Ohio.

Jan. 23-27. American Standards Association, Engineering Societies Bldg., New York.

Feb. 15-17. The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, William Penn Hotel, Pittsburgh.

Mar. 26-30. American Chemical Society (117th National Meeting), Houston, Texas.

Mar. 28-31. National Plastics Exposition, Chicago's Navy Pier.

April 9-13. American Chemical Society (117th National Meeting), Detroit.

April 24-27. National Packaging Exposition, Chicago's Navy Pier.

June 8-10. American Institute of Chemical Engineers (Regional), Hotel Statler, Boston.

June 12-16. Fourth National Material Handling Exposition, International Amphitheater, Chicago.

PROCESSING EQUIPMENT

Sept. 3-8. American Chemical Society (118th National Meeting), Chicago.

Sept. 5-9. National Chemical Exposition, Coliseum, Chicago.

Sept. 10-13. American Institute of Chemical Engineers (Regional), Minneapolis.

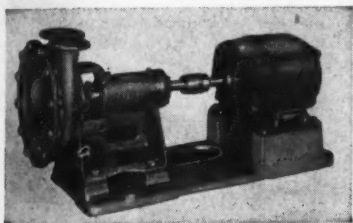
Stainless pump's stuffing box under suction pressure only; packing life increased . . .

made in 8 sizes for corrosive service; capacities up to 750 gpm; heads to 180'

Uses: Handling corrosive fluids.

Features: Stuffing box is on suction side of impeller; pressure on it is therefore limited to suction head under which pump operates.

Both suction and discharge connections are located in casing. Removal of casing cover permits interior of pump to be inspected or cleaned without disturbing pipe connections. Similarly, impeller may be removed or replaced without disturbing piping.



Stainless steel centrifugal pump

Description: Entire fluid end is of stainless steel mounted on substantial cast iron support. This design permits selection of the most

suitable metals for all parts coming in contact with the liquid, but eliminating use of special metals where not especially required. Pumps are built in 8 sizes. Capacity range covers all usual requirements encountered in process industries in handling corrosive liquids.

Can be furnished in other metals or alloys in addition to stainless steel.

Source: Goulds Pumps, Inc., Dept. CP, Seneca Falls, N. Y. . . . or for more information check CP 5671 on handy form, pages 2 and 3.

6 to 12 hp right-angle drives have right, left or optional through-shaft . . .

ratios include 1 to 1, 2 to 1, 3 to 1, 3 to 2, 4 to 3

Uses: Right-angle drive unit.

Features: Special spiral bevel gears, case hardened and matched and lapped in pairs after hardening. All shaft extensions have dirt and moisture-repelling oil seals. Output shaft may extend to right or left, or an optional through-shaft provides extensions to both right and left.

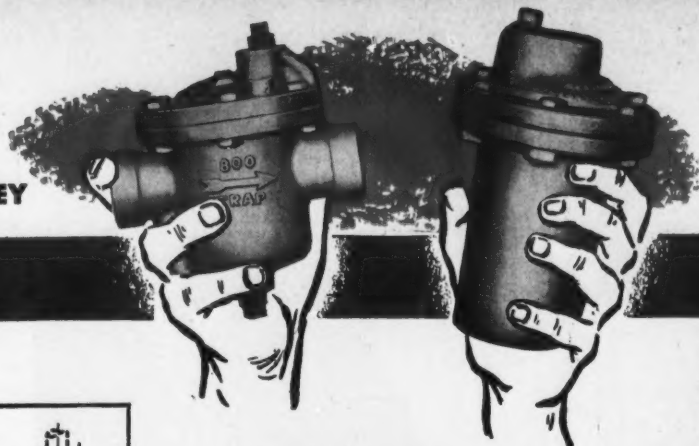
Description: Six to 12 hp capacity, depending on ratio. Available stock ratios include 1 to 1, 2 to 1, 3 to 1, 3 to 2 and 4 to 3. Other sizes are special. High grade cast iron case.

Input and output shafts are 1-1/4" diam., mounted in precision-tapered roller bearings.

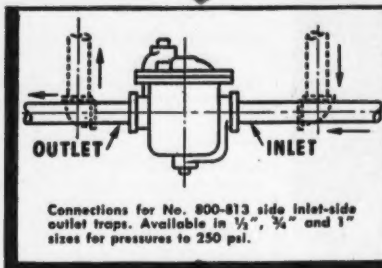
Source: Ohio Gear Company, Dept. CP, 1313 E. 179th St., Cleveland, O. . . . or for more information check CP 5672 on handy form, pages 2 and 3.

DECEMBER, 1949

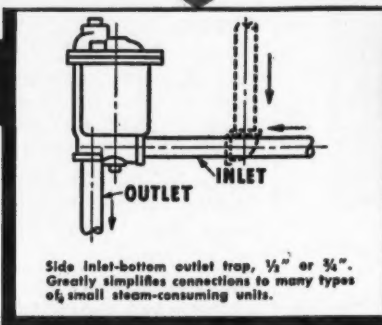
YOU SAVE TIME AND MONEY



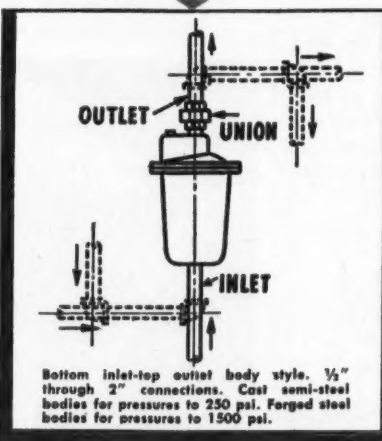
"This choice of Steam Trap Body Styles simplifies installations"



Connections for No. 800-813 side inlet-side outlet traps. Available in 1/2", 3/4" and 1" sizes for pressures to 250 psi.



Side inlet-bottom outlet trap, 1/2" or 3/4". Greatly simplifies connections to many types of small steam-consuming units.



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When inquiring check CP 5673 on handy form, pgs. 2-3



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PROCESSING EQUIPMENT

**Hooks to air compressor,
atomizing water to
humidify air . . .**

controls humidity within 2% fluctuation; also atomizes chemicals, insecticides, etc.

Uses: Humidifying units suitable for atomizing water, chemicals, insecticides, etc. For maintaining moisture uniformity, eliminating dry or dusty working conditions and reducing possibility of respiratory ailments or common colds.

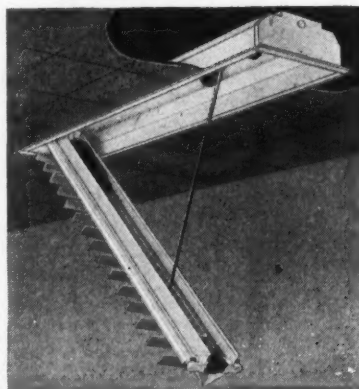
Features: Three sizes are reported to be of sufficient capacities to control humidity within 2% fluctuation in areas of 15,000, 30,000 or 45,000 cubic feet of space.

Description: These three sizes will diffuse up to one, two or three gallons of water or other liquid per hour, respectively. Required air consumption is six cubic feet per minute at 40 pounds, supplied by any suitable air compressor.

Source: Paasche Airbrush Company, Dept. CP, 1909 Diversey Parkway, Chicago 14, Ill. . . . or for more information check CP 5675 on handy form, pages 2 and 3.

**Recessed troffers are serviced
easily when designed with
"jackknife" feature . . .**

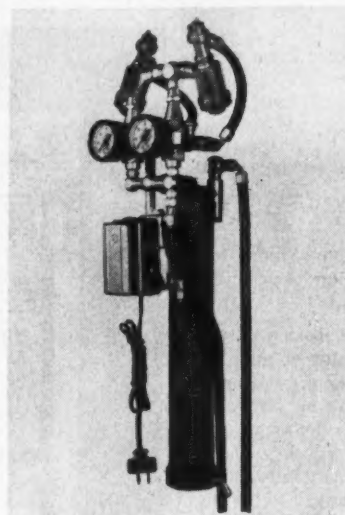
lamps and starters can be changed right from floor;
simplifies cleaning of reflector



Recessed "jackknife" troffer

can be quickly pulled through and connected. After channels are installed in the ceiling, reflector assemblies can be added right from the floor.

Source: "Jackknife Troffer" is a product of Edwin F. Guth Co., Dept. CP, 2615 Washington Blvd., St. Louis, Mo. . . . or for more information check CP 5676 on handy form, pages 2 and 3.



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CHEMICAL PROCESSING Preview

A report on the use of Dorrco D-I water in pharmaceutical and cosmetic manufacture.



d-i water

SHARPLY REDUCES COSTS

SIMPLIFIES PRODUCT CONTROL



at
LEHN & FINK PRODUCTS Corporation

Installed over three years ago, the Dorrco D-I System shown above has been continuously de-ionizing water for use in the manufacture of pharmaceuticals and cosmetics. Total operating expense has averaged 13 cents per 1,000 gallons of demineralized water produced. The unit has performed exactly as specified when sold . . . and has required no resin replacement in either cell.

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PROCESSING, EQUIPMENT and MATERIALS



Use this "quick-locator" when you want information on a specific type of process, equipment or material mentioned in the processing stories or the advertisements in this magazine. Everything discussed in this issue is given here—if you want more data you can write manufacturer direct . . . or turn to pgs. 2-3 and use the handy "Information Request Slip." This is a special service provided by the publisher . . . no obligation or charge, of course. The publisher contacts the proper manufacturers for you—information comes to you direct.

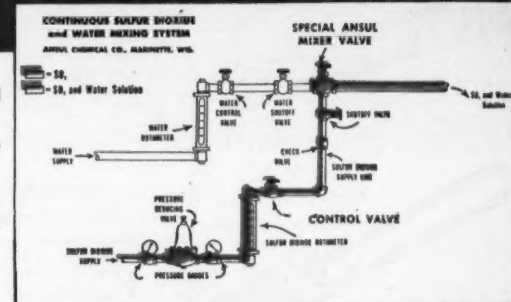
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CHROMALOX offers you efficient and economical *Packaged Electric Heat*—to fit your specific needs

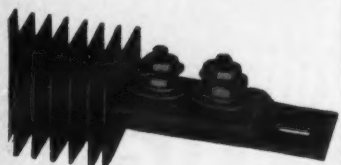
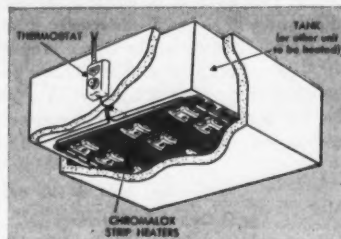
CHROMALOX Electric Heaters give dependable "on-the-spot" heat where and when heat is needed. They produce uniform and accurate temperatures with

automatic or manual control. Low initial cost, low installation cost and low operating costs are among the other advantages they give you.



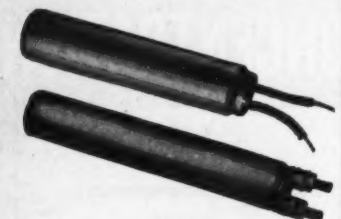
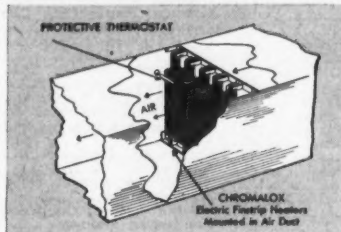
CHROMALOX STRIP HEATERS

Easy-to-install CHROMALOX Strip Heaters are clamped to flat or curved surfaces, round vats, pipes and tubes. They are made in straight lengths, rings and segments . . . and may be curved or bent to fit cylindrical or "dished" surfaces. Typical applications include: armatures, cleaning tanks, molds, process kettles, plating baths, revolving rolls, etc.



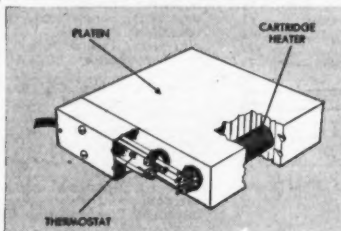
CHROMALOX FINSTRIP HEATERS

Finstrip Heaters are used for drying, curing, space heating and other applications requiring heated air under forced circulation. Air and gases are quickly and easily heated; uniform operating temperatures up to 750°F. are accurately maintained by thermostatic control. Finstrips, designed for minimum turbulence, are well suited for use in air-ducts.



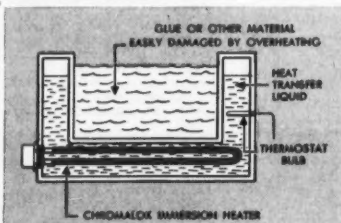
CHROMALOX CARTRIDGE HEATERS

Compact CHROMALOX Cartridge heaters are ideal for use when concentrated heat is needed. Inserted into close-fitting holes, they provide easily controlled heat for dies, molds, platens, etc. They are quickly and easily installed in stationary or moving parts with minimum labor and material costs; they may be controlled for accurate, dependable, care-free operation.



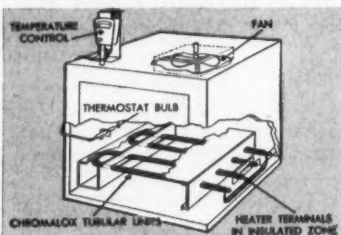
CHROMALOX IMMERSION HEATERS

CHROMALOX Immersion Heaters are used in degreasing, cleaning, pickling and plating baths; for melting greases, asphalts and similar viscous fluids; for heating Dowtherm, Arochlor, Prestone, and other heat-transfer mediums. Available in many sizes and types, with alloy sheaths to resist corrosive action.



CHROMALOX TUBULAR HEATERS

These heaters, in straight or tailored shapes are used for convection, conduction and radiant heating. They may be clamped to metal surfaces, used in ovens, or immersed in greases. They are especially useful to heat ovens, calendars, molding-presses and similar equipment utilizing heat.



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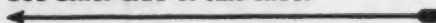
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"That's Interesting"

"Oh, DDT, where is thy sting?"

Strains of mosquitoes resistant to DDT have been found in areas along the east coast of Florida by USDA entomologists. These breed in salt marshes along the Atlantic and Gulf coasts. New insecticidal chemicals have been used experimentally against the resistant species. A few of these appeared promising as substitutes for DDT. (USDA, Washington, D.C.)

Plastic-faced plywood is used for concrete forms

Plastic-faced plywood for concrete forms permits forms to be used repeatedly and gives a smooth concrete surface finish that needs little finishing except paint. (Georgia Pacific Plywood & Lumber Co., Empire State Bldg., New York.)

Concentrating one hp on a 3c stamp

One kilowatt of power, or nearly one hp, can be concentrated in an area the size of a postage stamp in the utilization of ultrasonic energy. It is possible to get ultrasonic energy into places where it is difficult to get other types of energy.

Among various successful applications is the detection of flaws in castings. Tests indicate that sound waves may be also used in the mixing of alloys and laundering fabrics. (General Electric Co., Schenectady, N. Y.)

Caffeine prices

Economies made possible by a new manufacturing process have brought about a \$1.00 per lb reduction in the price of anhydrous caffeine, and a 95c per lb reduction for the hydrous variety. New manufacturing operations free the product from dependence on irregular foreign markets as a source of raw materials and help produce a quality product in ample quantities for various needs. (Monsanto Chemical Company, St. Louis 4, Mo.)

Synthetic corundum ball bearings

Synthetic corundum has been used successfully for ball bearings in Switzerland according to reports. Compared with steel balls, the corundum bearings are said to be hard, have great chemical resistance and physical stability. (USI Chemical News-U. S. Industrial Chemicals, Inc., New York 17, N. Y.)

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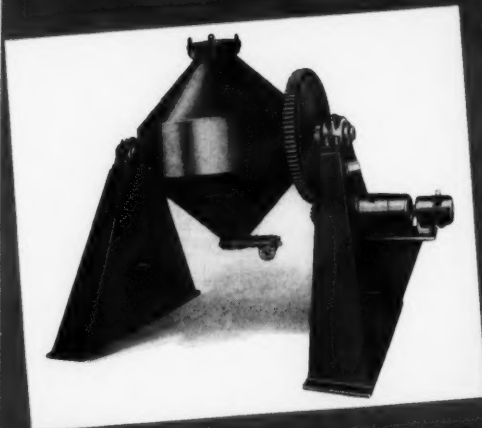
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